

WESTERN EDITION

APRIL • 1958

American Fruit Grower



Spray Thinning Apples,
Plums

75 Years and
Only 3 Crop Losses

Higher Trellises—
More Grapes

Fruit Areas—
Southern California

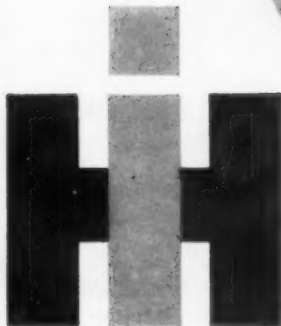
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APRIL, 1958

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American Fruit Grower

Cover photograph, by Gladys Diesing, shows clusters of the Bing variety of sweet cherry. Named after a Chinese workman, the variety originated in the orchard of Seth Lewelling, Milwaukie, Ore., in 1875.

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E. G. K. MEISTER, Publisher

RICHARD T. MEISTER, Editor

Managing Editor, E. K. GOULD, Associate Editors: H. B. TUKEY, ELDON S. BANTA.
Art Director, GEORGE M. ROSS, Production Manager, J. S. BENDER.

EDWARD L. MEISTER, Director of Advertising

District Advertising Offices

NEW YORK: W. J. Martin and Company,
185 Madison Ave. Phone—Murray Hill
3-2865.

LOS ANGELES: McDonald-Thompson, 3727
West 6th St. Phone—Dunkirk 7-5391.

NEW JERSEY: W. J. Martin and Company,
612 Bernita St., Rivervale (Westwood P.O.).
Phone—Parkridge 6-1595.

SAN FRANCISCO: McDonald-Thompson, 625
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CHICAGO: Peck and Billingslea, Inc., 185 N.
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ON APPLES AND PEARS

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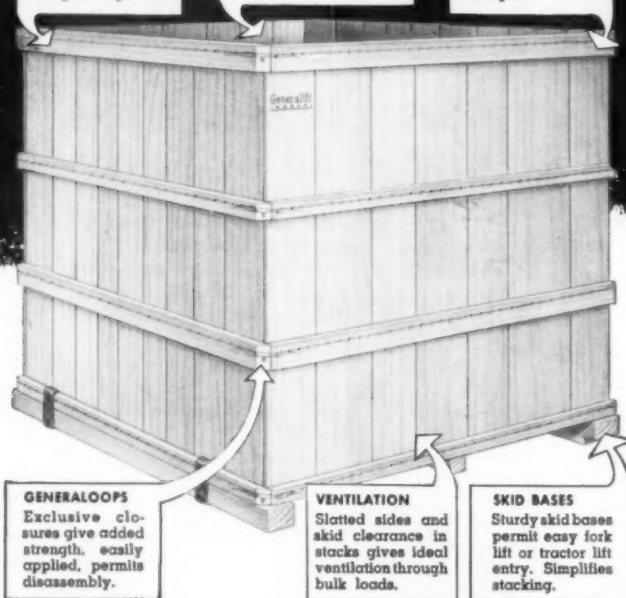
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can be stacked four high.

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projections—adds to
strength.



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General Box

Send for your copy of the Generalift
Agricultural Catalog Today.

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LETTERS TO THE EDITOR

2,4-D Injury

Dear Editor:

After reading the letter on 2,4-D injury to grapes in the February issue, I would like to make a few comments because we have quite a large acreage of grapes and have had considerable damage at various times from the use of 2,4-D by others. We are fortunate here in that the highway commission has refrained from its use within several miles of our vineyards; however, we do have some damage each year which is noticeable at the tips of new growth but does not affect the ripening of the fruit.

Barring the use of 2,4-D within certain limits is fine as far as it goes, but we must go farther because damage can result from its use at great distances when the wind is favorable for drifting. We are going to be forced to take some action here, but just what to do is the problem. Fort Madison, Iowa. Cecil J. Baxter

Dear Editor:

One of your correspondents in the February issue suggests that the French hybrid grape varieties are less susceptible to 2,4-D damage than the standard American sorts. As the nursery originally introducing these varieties commercially in the United States, we have had many years of experience with them, including several near disasters caused by the use of 2,4-D by neighbors.

On one occasion the 2,4-D was applied with a low-pressure boom on a still day, never closer than 60 feet to the vineyard. Despite that, there was extensive damage to mature vines a good 50 feet into the vineyard, and 90% killing of a block of newly planted vines. All the vines concerned were French hybrid varieties. Riderwood, Md. Philip M. Wagner

Boordy Vineyard

More on Black Raspberries

Dear Editor:

The article on black raspberries and making money (May, 1957) I feel is misleading, especially where there is a limited fresh market demand. Within the past three years there has been a large number of Oregon growers who fell for the processor's trap of 31 cents per pound and prospective yields of 1 1/2 to 2 tons per acre. According to the fieldmen, this is a fabrication. One ton is a high yield and the price in 1956 was 24 cents, in 1957, 16 cents.

Secondly, there is no yield the first year, maybe 700 pounds to 1000 pounds the second year, and 1500 pounds the third year if you are going just right. So, if you are lucky, you might break even at the end of the third year and you have had lots of exercise, but no profit.

We need a berry growers' bargaining association to bring berry prices up to a decent level and see that the price stays in the profit range.

There has been too much loose talk about grower efficiency and lower prices. Why not be realistic and demand a fair share of the food dollar. Growers have ten times the investment that the canners have in time, money, land, worry, and backache.

How about articles on successful growers' associations and how to start and run them? Such as the California Peach Growers and Washington Peach Growers. Oregon berry growers want to organize! Salem, Ore. Ben Holst

AMERICAN FRUIT GROWER

Consumer Reaction

Dear Editor:

I noted in your April issue a short reprinted item stating that three to four new 20-acre apple orchards per week should be planted just to keep up with our growing population. I wonder. According to government figures, the per capita consumption of apples dropped 44% between 1909 and 1948, from 55.5 pounds to 31.2 pounds, more than 1% per year.

Because I think we are probably typical, I'll give the reason for the decline of apple eating in our family. It is simply that unless we go to great expense and trouble, we can no longer find many apples worth eating. We don't want big red apples of varieties that bear well, ship well, keep well, and taste like sweetened sawdust. We would like to buy crisp, juicy, tasty, and often somewhat tart apples. They are remarkably hard to find, such varieties as Twenty Ounce, King, Tolman Sweet, Russet. And we agree with the common complaint that one bite of the customary big red apple is enough; the rest goes into the garbage.

It seems to me that the commercial apple growers are putting themselves out of business by catering to what they mistakenly suppose is an overwhelming demand for big red apples. Figures seem to show that this is true. With thousands of lures out for their money, the public gradually drifts away from inferior goods. It seems to me that with hundreds of splendid apple varieties available, apple growers must reeducate the public (example, flavor is independent of size and color!) and supply the public with apples which, good under the skin, call for more.

An orchardist with a small roadside stand told me that his customers were demanding so many Russets that he was planting more trees. With several non-commercial varieties, he seemed to be on the right track. Meanwhile, many of the commercial apple growers can cut down most of their trees for all I, and many other people apparently, care.

Crawfordsville, Ind. John A. Moore

Grower Reaction

Dear Editor:

Periodically in recent years a great cry goes up concerning the declining consumption of apples. The usual solution suggested is a tax on bushels produced to be used for promotion.

Advertising is effective without a doubt, but for the long pull the product must have uniform high quality and usefulness.

In the minds of the general public, the Red Delicious apple is the only apple grown. This variety is usually easier to sell than any other. Here, without question, is a tribute to the power of advertising. However, the per capita sales continue to decline. Here is proof that the product is less than perfect.

It is probable that many growers have never eaten a Red Delicious apple from the counter in a place such as the Union Station in Chicago or a neighborhood grocery store. We suggest that they try some. They will find that some of these apples simply do not taste good and others actually have an unpleasant flavor.

In addition to often being short on desirable qualities for eating out of hand, the Red Delicious apple is virtually worthless as a cooking apple. Yet this is the variety which the public has been led to believe represents the peak of perfection among all apples.

Is it any wonder that per capita sales of apples continue to decline?
Brodhead, Wis. Albert A. Ten Eyck

APRIL, 1958

Attention!

APPLE GROWERS

AS SURE AS SPRING—THERE WILL BE MILLIONS OF APPLE SCAB SPORES IN YOUR ORCHARDS THIS SEASON.

Kill Them with *Phix*. Before They Eat Your Profits Away



COMPARE ON ANY BASIS YOU WISH SEE WHY MORE GROWERS INSIST ON PHIX

THROUGHOUT THE APPLE GROWING STATES, PHIX has been proven and recommended by Experiment Station scientists, and is the CHOICE of thousands of successful commercial apple growers.

WHY? BECAUSE ONLY PHIX HAS ALL THESE ADVANTAGES:

- Gives you reliable, spore-killing, kick-back fungicidal action.
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- Cannot freeze or form a sludge.
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- Mild action, greatest margin of safety, and widest range of compatibility.

NOW AVAILABLE IN BOTH THE REGULAR 1 LB. CAN, AND IN A NEW 1 1/4 LB. CAN CUSTOM DESIGNED FOR 500 GAL. SPRAYERS TO ELIMINATE ALL MEASURING.

Order PHIX from your dealer early. Insist on PHIX—GET THE MOST FOR YOUR MONEY. REMEMBER—IT PAYS MORE WAYS, WHEN YOU USE PHIX. If your dealer does not have it, write, wire or phone your order to us with your supplier's name.

Attention!

STRAWBERRY GROWERS

LEAF BLIGHT AND STEM-END FRUIT ROT DISEASES CAN CAUSE ENORMOUS CROP LOSSES ON SUSCEPTIBLE VARIETIES.

AN EARLY SPRAY WITH PHIX IS THE MOST IMPORTANT AND MOST EFFECTIVE SINGLE CONTROL MEASURE AVAILABLE FOR KILLING THESE DISEASE ORGANISMS — PROVED IN EXPERIMENT STATION TESTS ASK YOUR DEALER FOR PHIX.

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modern farming's **NEW** pace-setter





LOW COMPACT MANEUVERABLE

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(Illustrated is the famous Ferguson 35)

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Why Ferguson System Tractors Are Ideal for Orchard Work. Cleanly designed, low-silhouette body for close-in work; no overhead exhaust or air intake pipes to obstruct work under low-hanging branches.

. . . *Handy Control Quadrant*—Finger-tip lever raises or lowers the implement to clear trash, make short turns, or for transport. Features automatic draft control.

. . . *Variable PTO*—Power take-off operates your spraying, fogging, or dusting equipment efficiently at any ground speed. Two-stage clutching helps when making numerous stops and starts.

. . . *Ease of Handling, Comfort*—Easy steering; deep "foam-float" seat; safety starting; 12-volt electrical system; tractormeter. Everything about these tractors makes them the handiest and most economical for all your fruit growing operations. Ask your Massey-Ferguson dealer for a demonstration today.

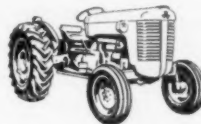
Full Line of Massey-Ferguson Orchard Tillage Implements. Your Massey-Ferguson dealer offers you a complete line of close-coupled, three-point hitch mounted implements for orchard operations.

The line includes offset disc harrows in three sizes; tandem disc harrows in two sizes; rigid and flexible spring tooth harrows.

Ask to see the Massey-Ferguson disc tiller, which is especially adaptable. Individual disc hangers allow variable spacing and may be offset either left or right to "hill-up" or "bar-off" in orchards or vineyard.

All-New Massey-Ferguson 65

First big, 4-plow tractor with the Ferguson System. Features low-silhouette design, handling ease and maneuverability with larger implements, including row crop.



New Massey-Ferguson 50

All the advantages of the Ferguson System in a medium-sized tractor. New, more powerful hydraulics. Available in four front-end styles for row crop, mounted implements.



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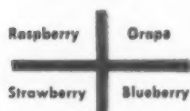


before it's

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...specify *Sul-Po-Mag*[®]
in your premium mixed fertilizer

Magnesium
deficient leaves of:



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Premium Fertilizer Contains

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Water-Soluble Double Sulphate of Potash-Magnesia
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UNIONS...

The West's Marketing Boss?

A fertile field for labor union activity is in the concentrated fruit areas of the West.

Jesse Childs, retired veteran grower of Washington's Yakima Valley, gives a bird's-eye view of the disadvantages un-

der which western growers must harvest and market their crops in the face of increasing eastern competition.

Western growers wince under the union's stranglehold but the best of them continue to plant additional acreage.

By **JESSE C. CHILDS**

IT early became apparent that the irrigated valleys of the state of Washington were ideally fitted to produce superior apples. Consequently, not many years after the turn of the century, considerable shipments were made to large eastern markets.

As these shipments were well received, a campaign of planting was started which resulted in Washington becoming the leading producing state of apples. It has continued to hold that position, in spite of the fact that it has the great disadvantage of a long, expensive freight haul to bring the fruit to the large consuming centers in the Central states and East. There it must meet the competition of locally-grown fruit with low transportation charges. It has so far been able to overcome this disadvantage.

But there is another increasing disadvantage that presents a grave threat to the industry of the state: the domination of big unionism over the economy of the nation, and the fact that it applies far more to western apples than to fruit grown in the central sections and the East.

The packing houses in the Yakima Valley, for example, that receive, grade, pack, store, and ship the apples are unionized. For years the unions

have been demanding and enforcing higher wages, under threat of a strike at harvesttime. Even in 1957 when it was apparent that apples were to bring a disastrous price, the union demanded and enforced a considerable wage increase. The local Fruit and Vegetable Workers Union is a subsidiary and branch of the Teamsters Union.

When negotiations with the packing houses started, the Teamsters announced that they would back the demands to the limit. This meant that in case of a strike, the fruit would not be received in the packing houses; it would freeze and rot in the orchards. Consequently the packing houses perforce granted the raise, adding it, of course, to the already high price charged growers for handling fruit.

It is, of course, to be expected that in the future there will be an annual demand for higher wages. The unions have demonstrated their power and will use it. When Samuel Gompers was asked what the unions wanted, he answered, "More."

The packing houses in the Yakima Valley that handle the fruit are a concentrated industry that presents an attractive target for the unions.

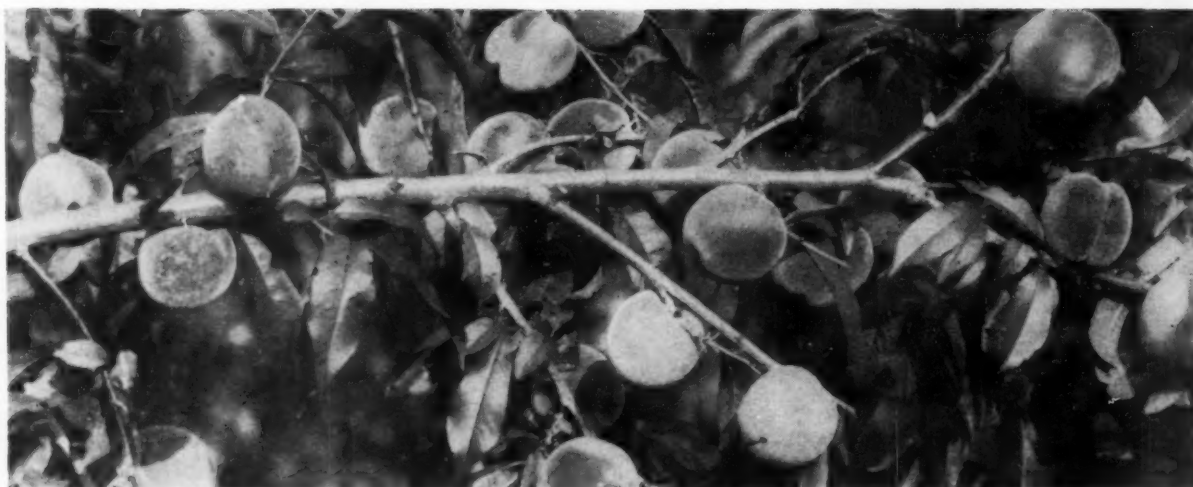
A Fruit and Vegetable Workers Union was organized. It did not meet immediate and satisfactory success in

signing up workers, getting less than a majority. So the Teamsters decided on more direct and forcible measures. In the fall of 1942 they declared a strike in all Yakima packing houses and forbade all Teamsters in the country to handle Yakima apples. This also applied to Retail Clerks Unions, also a subsidiary of the Teamsters. They declared that Yakima apples would rot in storage.

The embargo was not 100% effective, but interfered seriously with the movement of Yakima fruit. This resulted in vigorous local agitations by the growers. The War Labor Board summoned both sides to Washington to present the case. Representatives of the packers and growers attended, including myself, then president of Washington State Horticultural Association.

The War Labor Board was comprised of nine men, three representing the unions, three employers, and three ostensibly representing the public. It seemed to the representatives of the apple industry that the three representing the public were so chosen that they in reality were representatives of unions, or were at least union sympathizers. So the War Labor Board ordered the unionization of the packing houses.

(Continued on page 77)



Barden orchards have not always produced bumper crops, but even lighter yields have been of commercial value.

75 Years . . . and ONLY 3 CROP LOSSES

Four generations of this Michigan family have relied on site and location as orchard frost protection

By DONALD R. BARDEN

PRACTICALLY the only protection against spring frost and subnormal winter temperatures we have ever used in our orchards are site and location.

Located 1¼ miles from the eastern shore of Lake Michigan on high elevation that provides cold air drainage on three sides, we have had only three complete peach crop failures in 75 years.

Full credit for the location of our orchards goes to my great-grandfather, Richard Barden, who in 1854 selected this section of land, which was then covered with hard maple and beech timber. He apparently wanted his farm close to the lake for better transportation, and chose the higher elevation because the type of timber indicated fertile, well-drained soil that could be planted early enough in the spring to avoid frost damage to his crops.

By 1875 my grandfather, James K. Barden, recognized the possibility of this land as a good location to grow peaches, and he and his brother, Henry, were among the first to plant peach orchards in this

locality. Some of the orchards on low land in the neighborhood were soon to be frozen out, but grandfather was quite successful with his original plantings and soon cleared more fields on the higher elevations of the farm and planted more peach orchards.

Everything was fine until the "big freeze" of 1906, which killed most of the peach trees in the state, including most of those on our farm. My father, Floyd M. Barden, was taking an active interest in the farm and was continuing his education at the then Michigan Agricultural College. He decided that a fruit farm needed some diversification as insurance against any future freeze disaster, so he planned many of the new orchard plantings with apples and pears, using peaches as "fillers" on lower locations. The peaches would give early production, and the apples would continue to produce many years after removal of the peach trees.

The peach fruit buds were killed by subnormal temperatures during the winter of 1934, but most of our trees survived. Even then, a few bushels of fruit were harvested on the hilltops. This was the year that

my father's planting foresight paid off, because he still harvested a profitable crop of apples and pears.

My brother Ben and I received our college training, then decided to continue the family fruit-growing tradition on the home farm.

Cherries and pears had been added to our plantings in the early '30's, and in 1934 we planted an additional 20 acres of peaches, apples, pears, and cherries. The year 1935 produced big fruit crops but very low prices, and ended with a financial loss.

In spite of the adverse financial outlook at that time, we decided to go into debt for the 100-acre fruit and dairy farm that joined us on the west. When the opportunity came for us to buy it on a contract payment basis, we took it mostly because of the site and location.

The sub-zero temperatures during the severe winter of 1936, plus late spring frosts, resulted in a small yield of peaches from Michigan that fall, but our location proved its value by giving us a good crop at three times the price of the previous year.

Our orchards are not all entirely
(Continued on page 67)

Little Known Facts About POLLINATION

An understanding of the limiting factors leading to fruit development will help you minimize your crop losses

By W. H. GRIGGS
University of California, Davis

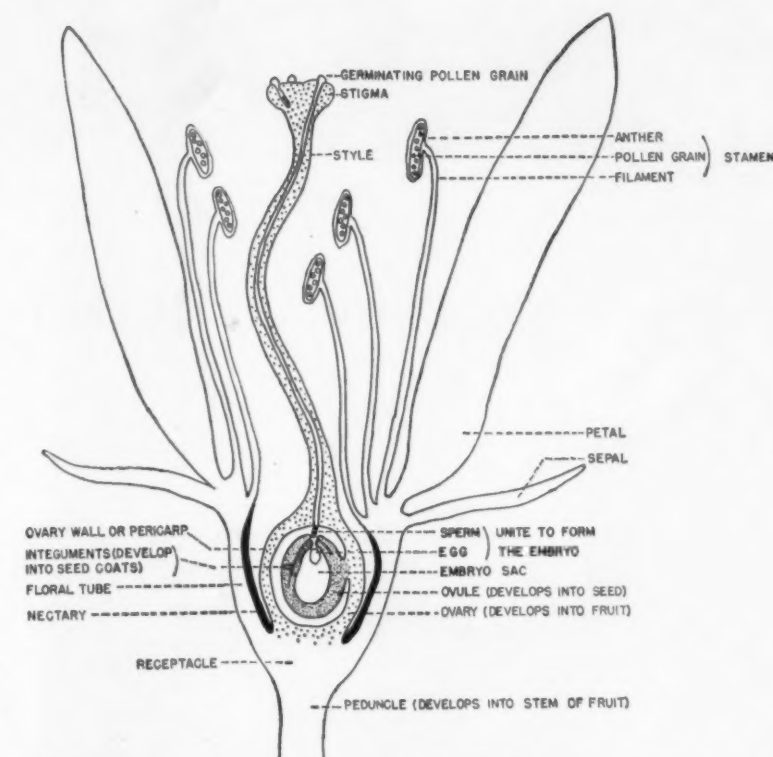
THE time when blossoms "blow" brings eternal hope of another bountiful crop. The uncertainty of the blooming and fruit-setting period, however, is a perennial source of anxiety to the grower. A late frost or a prolonged period of unfavorable weather during blooming time may seriously reduce crops which, otherwise, have excellent prospects.

In California the time of bloom depends upon whether or not the buds have been exposed to enough chilling weather to break the rest period as well as upon spring temperatures. In areas where there is extended cold weather during dormancy, the rest period is usually completely broken. This may not occur in most deciduous fruit areas in California, and, as a result, blossoming is delayed and bloom is generally extended over a longer period.

This situation may help avoid early spring frosts and favor pollination and fruit setting. Less cold than normal may, however, retard blossoming so much that certain varieties may be delayed too long for cross-pollination, for example, Bartlett and Winter Nelis. In the East and Northwest (where the rest period is completely broken), the Bartlett pear, which starts growth at a lower temperature, blossoms ahead of Winter Nelis. Following normally cold winters in California, these varieties bloom about the same time, but following the mildest winters the Winter Nelis may be past full bloom before the Bartlett starts blossoming.

After warm, sunny winters many peach, nectarine, apricot, plum, and prune varieties will drop large percentages of their flower buds before the blossoming period. Dropping usually begins late in January and may continue through the blossoming period.

Cool weather occurring after the earlier varieties are in bloom may also interfere with cross-pollination by delaying later-blossoming varieties. This condition occurs in some years with almonds, the Texas and Drake varieties being delayed until after most



Longitudinal section of flower that produces a stone fruit. Pollination has occurred. Pollen tube formed by germination of pollen grain carries the two sperms to embryo sac, where one of them unites with the egg (fertilization). This union results in production of a seed (embryo) and development of ovary into a fruit. (Drawing by R. M. Brooks.)

of the blossoms of Nonpareil have fallen. In most years the bloom of these varieties will overlap sufficiently to permit cross-pollination.

Seeds of deciduous orchard trees will not develop unless the egg is fertilized. Since the edible part of nuts is the seed, fertilization is necessary for all nut crops. Fertilization is also necessary for the development of the edible fruit in most deciduous fruits, but in a few species the flower will develop into a mature fruit without fertilization. Fruits that set without fertilization are known as parthenocarpic fruits. Some varieties of figs, pears, and oriental persimmons will develop fruit parthenocarpically.

Orchardists know that temperatures ranging below 32° F. will kill the essential organs of the flower or the developing seeds of the young

fruit. Heaters, wind machines, and irrigation systems are used, therefore, to try to hold the temperatures above the critical point for the different kinds of fruit. But what about the more subtle effects of temperature and other ecological factors, such as wind, humidity, and rainfall, on pollination and fruit set?

The whole sequence of events from pollination to fertilization depends upon the prevailing temperatures. The most desirable temperatures for bee activity lie between 65 and 80° F. There is little bee activity below 45° F., and usually bees will not fly from the hive until the temperature is about 60° F. The optimum temperatures for pollen formation, flower receptivity, pollen germination, pollen tube growth, and fertilization also lie be-

(Continued on page 68)

THE FRUIT AREAS OF AMERICA

SOUTHERN

This visit to Southern California is the fourteenth in our series of articles on important fruit areas. Previous tours have taken us to New Jersey; East of the Cascades in Washington; California's Central Valley; the Ozark region of Missouri, Arkansas, and Oklahoma; New England; the Lower Rio Grande Valley of Texas; British Columbia's Okanagan Valley; Western New York; Georgia; Appalachia; Idaho; South Carolina; Michigan.—Ed.

By **WALTER REUTHER**

*University of California
Citrus Experiment Station, Riverside*

THE culture of citrus fruit, particularly the orange and the lemon, played an important role in the early history and economic development of California. Seedling citrus trees were introduced to southern California about 200 years ago by the Jesuits. The first citrus seed were introduced from orange and lemons growing in mission gardens in Mexico which in turn were introduced from Spain.

The first commercial plantings were made in the vicinity of Los Angeles about 150 years ago. The acquisition of California by the United States following the Mexican War, and subsequently the Gold Rush, stimulated interest in citrus culture. Shortly after the close of the Civil War there were about 200 acres of oranges and 50 acres of lemons planted in the Los Angeles region. The first railway car composed entirely of citrus was shipped east in 1877. By the turn of the century, over 40,000 acres of citrus orchards had been planted.

At the end of World War I, somewhat more than 200,000 acres were devoted to citrus culture in California. In the period between World War I and World War II, the total acreage increased at a rate averaging about 7000 acres per year until about 1938. During World War II and the early post-war period, the industry remained fairly constant between 325,000 and 330,000 acres.

In 1948 the citrus industry began to shrink at the rate of approximately 10,000 acres per year. The rate of shrinkage declined sharply during the 1956-57 season as compared with the 1955-56 season, due in part to a reduced rate of pulling of bearing orchards, but more fundamentally to an increased rate of new plantings. Preliminary estimates indicate that about 228,000 acres were devoted to citrus culture in California in 1957,

AMERICAN FRUIT GROWER



Typical scene, in top photo, shows contour planting of young avocado and lemon trees on hillside location near Ventura. Worker is regulating valve in irrigation standpipe. Bottom photo shows mature fruit of Valencia orange amidst flowers for next season's crop. Valencias require about 15 months from bloom to maturity in most of California.

CALIFORNIA

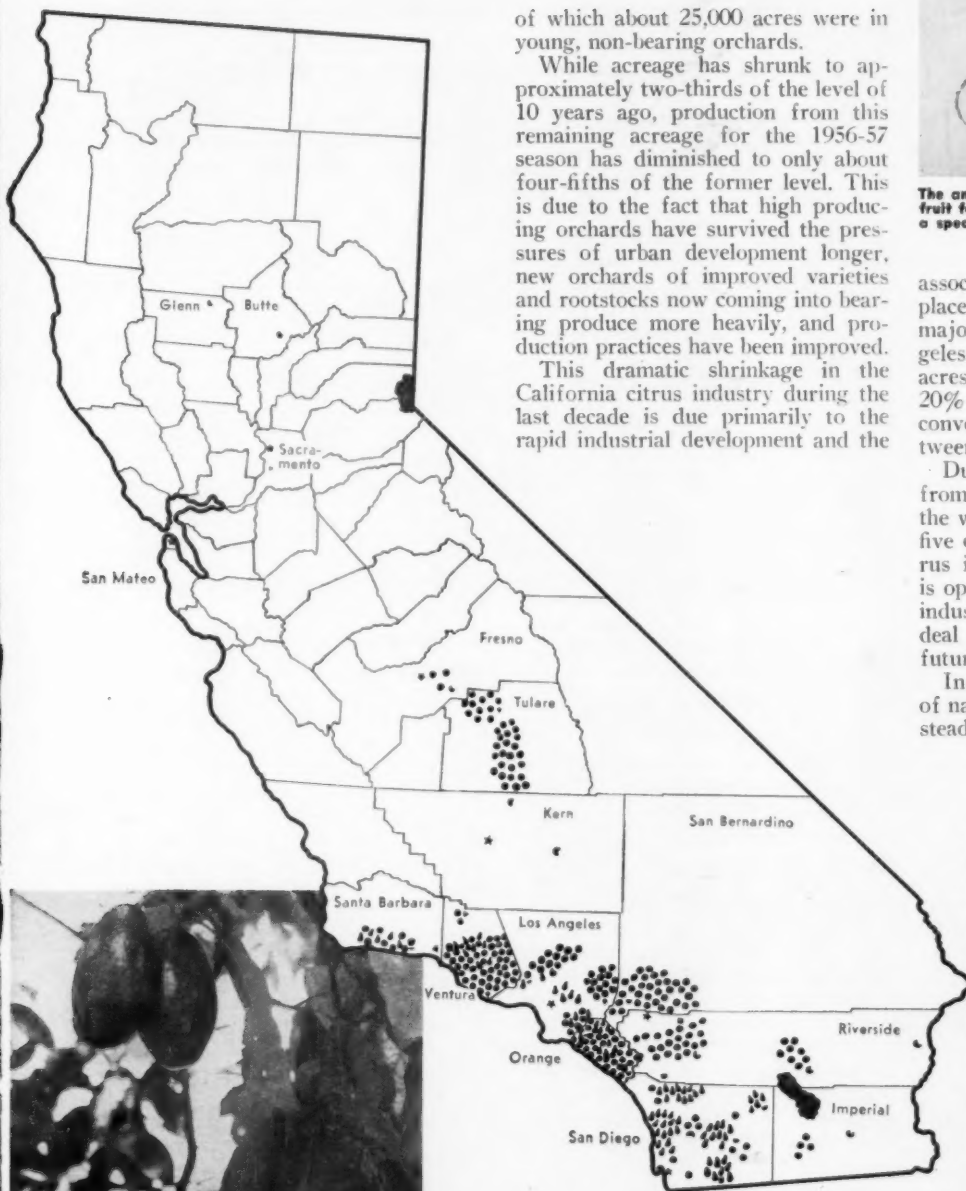


The ancient lychee from southern China is a new fruit for southern California; it is being tested as a specialty crop in the low frost hazard areas.

associated population growth taking place in the Los Angeles basin. The major decrease occurred in Los Angeles County where over 200,000 acres of agricultural land (or about 20% of the estimated total) were converted to private or public use between 1942 and 1956.

During the past five years, returns from citrus orchards have been, on the whole, good to excellent. Four or five other industries now surpass citrus in dollar value. However, there is optimism among the leaders of the industry, and in some areas a great deal of planting is planned for the future.

In central California new plantings of navel oranges have been increasing steadily in the last few years and
(Continued on page 74)



Map shows California's citrus and avocado producing areas. Each round symbol represents 1000 acres of citrus, each pear-shaped symbol located in counties of same name with exception 500 acres of avocados. Stars represent cities, of San Francisco (in San Mateo County) and Bakersfield (in Kern County); Sacramento, Fresno, Los Angeles, Riverside, San Diego.

Success of dooryard trees of avocado, an attractive rapid-growing evergreen, led to commercial plantings which today total some 24,500 acres. Hydraulically operated lifts place date pickers within easy reach of fruit. Each bunch consists of 600 to 1200 fruits, weighs 10 to 30 pounds.





State REPORTS

WESTERN EDITION

Fertilize for Fruit Color in Idaho

THE Idaho fruit grower is always evaluating his enterprise and looking for ways to put out a better product cheaper. Apple varieties grown are Jonathan, Delicious, Rome, and Golden Delicious. A favorable climate and soil team up to produce high colored quality fruit. Most fruit soils in the state contain sufficient potash so this element is not a problem.

Even though apples and pears do not respond directly to phosphate application, we add phosphorus for the benefit of the legume cover crop if soil tests or crop response indicates it is needed. In this way the tonnage of the cover crop is increased and the tree indirectly benefited.

Nitrogen is the main element needed and has to be added annually. Favorable weather conditions last season resulted in too many extra large Delicious and Romes in many orchards. The trade demands a high colored Delicious of the size 100-125. Most pomologists will agree that addition of nitrogen will increase the size of fruit if the tree is starved for nitrogen, but that it would not increase the size of fruit significantly if the tree has a normal supply of nitrogen available to it.

It is a recognized practice to maintain annual production by use of blossom thinning sprays, and to avoid a crop of large sizes we must avoid over-thinning. The tree conditioning thinning after the June drop must be judicious to keep size right and color high. Pruning is necessary in order to spray effectively and, most important, to let sunlight in to color the fruit. Pruning reduces the demand for nitrogen.

Color is the main factor to consider in fertilizing trees. Red sports

Fertilizer Practices in Idaho and Hood River Valley

of Delicious, Jonathan, and Rome Beauty do not have the color retarded as much by heavy applications of nitrogen as standard varieties.

Light nitrogen applications only are recommended for the "standards" if they are grown for the fresh market instead of the cannery. Most growers wish to retire their "standards" as soon as possible and some that plan to keep them for one more crop are putting on no nitrogen this year. They expect to get the best color for the last crop. It looks like the future of any but red sports of Delicious, Rome, and Jonathan is insecure.

The continuous cover crop system is used, and the cover crop most generally grown is alfalfa. Alfalfa supplies some nitrogen to the soil. Vetch is used on sandy slopes. There is some sod cover and where the sod is thick, additional nitrogen must be added to satisfy this nitrogen robber. Certain trees will need more nitrogen than others.

We like to say that when we plant a tree it should be allowed to establish itself before adding nitrogen. But we find on our soils (desert soils out of sage brush) that unless we apply about $\frac{1}{4}$ or $\frac{1}{2}$ pound ammonium sulfate, or its nitrogen equivalent in another fertilizer, to the one-year-old tree just after it is planted we don't get the growth we would like. Care is taken not to add so much nitrogen that the tree grows too late in the fall, delaying its hardening off and thereby getting hurt by early freezes. Nitrogen application varies on mature trees from $1\frac{1}{2}$ to 2 pounds of actual nitrogen.

Fertilizer is broadcast in early spring about six weeks before bloom. Sometimes, in case of heavy applications, a split application is made, one-half in the fall and the remainder in the spring. Barnyard manure is still used and heavy applications are suspected of inducing rosette or little leaf. Rosette generally occurs on soil that has been used as a feedlot. Rosette is easily

controlled by a spray of zinc sulfate just before buds burst in spring.

Commercial fertilizer is broadcast beneath the branches of the tree in a wide band extending from 3 feet of the trunk to 3 feet beyond the spread of the branches. Rains dissolve the fertilizer and carry it to the feeder roots.

Bartlett is the principal variety of pears grown in Idaho. Generally the growers who add nitrogen regret it in years when fire blight is serious.

Italian prunes and President plums return the most per volume of fertilizer when fertilized at the rate of $\frac{1}{2}$ pound of actual nitrogen for every 10 years of age of the tree.—*Anton S. Horn, Ext. Hort., U. of Idaho, Boise.*

Boron Important in Oregon

NITROGEN and boron are the two plant nutrients that have proved their value in the fertilizer program for tree fruits in Oregon's Hood River Valley. Soil analyses have often indicated that some Hood River County soils are low in phosphorus; however applications of phosphorus fertilizers have had little effect on tree growth or production. Such applications have proved beneficial for legume cover crops growing in the orchard.

Cultural practices have a definite effect on amount and type of fertilizer needed. All orchards in the county are irrigated, with sprinkler irrigation being used in over 70% of the orchards.

Most growers either maintain a permanent cover crop or a rotation cover crop program to control erosion and to add organic matter to the soil. Growers following a rotation program usually seed red clover about every three years. Others follow the practice of re-seeding one-third of the orchard every year. Many orchards have permanent cover crops such as orchard grass, English rye grass, or quack grass.

Cover crop cutters are utilized
(Continued on page 73)



"FORD TRUCK LASTS LONGER

because of
EATON 2-SPEED AXLE"



says farmer **MATT P. KATICICH**,
Manager, Peter Katicich & Son, Cupertino, California

"We've used the same Ford truck in our orchards since 1934," reports Matt Katicich. "In 1946 we equipped our truck with an Eaton 2-Speed Axle and installed a new engine at the same time. That new engine has rolled up over 150,000 tough miles — and it's still going strong. Before we got an Eaton 2-Speed, we went through two engines that averaged less than 100,000 miles each.

"With an Eaton 2-Speed, a truck's engine doesn't waste energy doing a job. Going through the lanes separating our plum trees, Eaton's low-gear range assures plenty of dependable pulling power. Even with a full load over ground that's soft and muddy, there's no danger of bog-downs. And, because we don't have to rock a truckload out of a deep rut, we avoid putting excess strain and wear on the engine.

"When we must disk the earth beneath our trees, we spot the equipment in the right place, hauling it in on a trailer pulled by our dependable Eaton-equipped truck. Carrying a sprayer into the groves — for pest control — or hauling fertilizer during the off-season — the Eaton 2-Speed Axle gets our truck through quickly. No sinking into soft ground and getting stuck. No delays. We know that an Eaton 2-Speed is essential for this kind of farming."

An Eaton 2-Speed Axle can help you save more, do more. Ask your dealer for a demonstration.

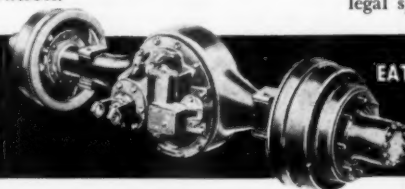


"**DRYING MACHINES** turn our plums into prunes," adds Matt Katicich. "Then they're loaded in large bins onto our Eaton-equipped truck and hauled to the packing plant. Thanks to our Eaton 2-Speed, it's easier to maneuver the truck at the loading platform. It also takes less time to pick up speed from a dead start."



"**IN TRAFFIC**, the Eaton 2-Speed provides much smoother operation," says Mr. Katicich. "In fact, we probably wouldn't be able to haul maximum payloads on these congested roads without an Eaton 2-Speed. And, on an open stretch, Eaton's high-gear range gives us fast legal speeds at lower engine RPM."

EATON
2-SPEED TRUCK AXLES



EATON MANUFACTURING COMPANY
CLEVELAND, OHIO

MORE THAN 2 MILLION
EATON AXLES IN TRUCKS TODAY





- Western Berry Growers Pledge Joint Co-operation
- Pennsylvania Boosts Hort Society Dues for Fruit Promotion

Boost Annual Dues

PENNSYLVANIA—Fruit promotion in the state will get a boost this year with additional revenue provided by increased membership dues of State Horticultural Association of Pennsylvania. Annual state dues have been raised from \$2 to a minimum of \$5 and a maximum of \$100. Basis for computation of dues in between these limits is 10 cents an acre.

Berryman Pledge Co-operation

OREGON—Berry growers from Washington state and Oregon have pledged full co-operation in working toward an equal and fair market price for their crop.

Meeting recently in Tacoma, Wash., were directors of Northwest Berry Association, Woodburn, Ore., and Skykomish Valley Berry Growers Association, Snohomish County, Wash., both new groups, as well as representatives of King County growers and directors of Puyallup Valley Berry Growers Association, the host organization.

Mutual effort is expected to eliminate an unfortunate situation of former years when groundless rumors circulated between Washington and Oregon growers, sometimes to the detriment of prices.

Other points in the four-part proposed program are:

- 1) continuation of frequent meetings;
- 2) efforts to conduct a joint promotion

SPEED UP GRAPE HARVESTING

Continuous grape presses that will speed up harvesting of the Michigan Concord grape crop will replace hydraulic grape presses at the Lawton (Mich.) plant owned by The Welch Grape Juice Co., Inc., Westfield, N. Y. In a \$275,000 improvement program, Welch will install eight new presses at Lawton before the 1958 harvest season. These presses will have a combined pressing capacity of 900 tons of grapes a day, or one-third more handling capacity.

program; particularly for the forthcoming fresh market; and 3) co-operation in promoting research on berries as well as development and improvement of methods of processing berries and berry by-products to expand the market.

Sweeter Deal in Sour Cherries

NEW YORK—Sour cherry growers can hope for a sweeter deal as the result of forthcoming consumer research, especially if they follow it up with increased promotion and advertising.

This was the message brought to a meeting of New York Cherry Growers in Rochester by Ray Wilson, of Waterport, president of the group. He said that 1957 was not a good price year for growers or processors, "but it would have been a lot rougher without our advertising program."

Fred P. Corey of Rochester, executive secretary, said last year New York's production of sour cherries was 22,000 tons,

compared with 14,000 tons in 1956. New York is the second largest producer, ranking next to Michigan.

In his annual report, Corey said a number of things are being planned to meet the challenge of marketing larger crops. Research studies "in the store" will be directed by Max Brunk, Cornell University marketing specialist, to determine just what consumers want in size and type of pack and to ascertain their reaction to new cherry products.

"All of this is designed to expand the retail market," said Corey. It was reported that about 50% of all cherry growers support the association's promotional program and it is thought this could be greatly increased if growers obtain a state marketing order.

Administer Marketing Agreement

GEORGIA—Eight members and alternates from the state have been appointed to the USDA's industry committee, which will administer the marketing agreement

and order program on state peaches during the 1958-59 fiscal year.

The following members and their alternates, respectively, were named to serve from March 1 of this year to February 28, 1959:

E. H. Hart, Jr., Marshallville, and S. A. Frederick, Ft. Valley; J. F. Duke, Ft. Valley, and George Felton, Macon;

ANNUAL SWAP MEETING

Exchange of scion wood will highlight the annual spring business and swap meeting of Ohio Nut Growers Association April 13 at Kingwood Center, Mansfield. Dr. Oliver D. Diller, head of the forestry department, Ohio State University, will be the principal speaker. The event begins at 1 p.m.

J. P. Brown and D. M. Rumph, Montezuma; Bennett Rigdon and E. L. Duke, Jr., Ft. Valley; W. D. Williams, Gray, and Thomas J. Glover, Newnan; T. H. Carroll and H. G. Riggins, Woodbury; J. Curtis Woodson and Hubert Hancock, Thomaston; and W. N. Arden and C. W. Hood, Jr., Commerce.

From the pecan industry comes a report that the state's crop may equal or exceed the record 60 million pounds produced in 1956 if weather is seasonable

FRUIT PEST HANDBOOK

(SIXTY-THIRD OF A SERIES)

RING SPOT

THE ring spot virus disease of sour cherry is present throughout the United States, often affecting every mature tree. Ring spot of peach is important in the western states but is rare or absent in eastern orchards. Tatter-leaf of sweet cherry is a type of ring spot disease. The same virus or various strains of a virus family are common in many stone fruits, often occurring in masked form with no visible symptoms.

In sour cherry, prominent symptoms occur in the spring when the virus first spreads through the tree. There may be a pronounced delay in leaf development. Dark-green rings, semi-circles, or small irregular areas appear on the leaves before they unfold or shortly thereafter. The dark green tissue may die and fall out, resulting in a "shot-hole" or "shredded-leaf" condition. As the season advances, mild symptoms may disappear and new growth may be without symptoms. Diseased leaves remain near normal in color and do not fall until the normal time.

Symptoms may be absent or very mild the second and following years after infection. The virus is present in these trees, however, and may spread to other trees in the orchard.

In other *Prunus* hosts, including peach and sweet cherry, the symptoms vary considerably but usually include some rings, spots, or various ring and spot patterns during the early or acute stage of the disease.

Ring spot may reduce the yield of sour cherry by as much as 40% during the year that the disease first occurs, but the yield increases to about 90% of normal within one or two years thereafter. Some reduction in growth takes place but this may not be more than 10%.

A great danger of ring spot in sour cherries is that this disease is often followed within less than two years by another virus disease, yellows, which causes a serious and permanent yield reduction.

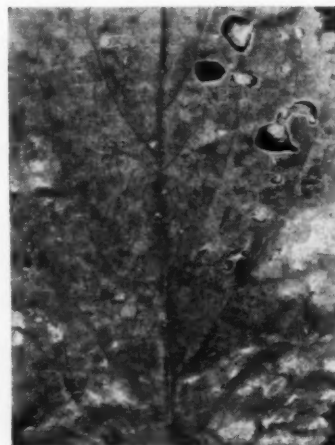


Photo: John S. Boyle

Ring spot on sour cherry leaf.

Control—Control efforts are aimed at production and distribution of virus-free trees. Many such trees are available, and should be used whenever possible. They will have an advantage during the early part of their life but are not immune to the disease. Planting young trees away from older, often diseased trees may cause a significant delay in any future infection and yield reduction. Pulling diseased orchard trees may be impractical because of difficulty in recognizing trees which carry virus but show no symptoms. Sick trees cannot be cured.—F. H. Lewis, Pennsylvania State University.



Niagara Kolo 100

In areas where apple mildew is a problem, Kolo 100 products (which are a carefully balanced blend of phygon and Kolo sulphur) provide the apple grower with a very effective and economical early season control for both scab and mildew.

Many growers have found that the best program is Kolo 100 early followed by Niacide, which is the ideal apple fungicide to produce fancy fruit with fine finish.

CONTROL BOTH **MILDEW** and **SCAB**

It is noteworthy that last year, where mildew was prevalent, orchards treated with Niagara Kolo materials were free of this disease. In surrounding orchards, treated with certain of the organic chemicals, mildew was quite destructive. You can draw your own conclusions!

But for the best fungicides to control both scab and mildew, as well as other fungus diseases, you can't beat the proven effectiveness of mild non-caustic Kolo materials.

Whether or not mildew has been a problem to you, it is an ever-present threat. Don't take chances. Call in your Niagara field man now. Let him chart a protective program that is both safe and sure. Regular applications of the Kolo materials he specifies will carry you up to harvest with a heavy crop of fine finished fruit.

Putting Ideas to Work



FOOD MACHINERY AND CHEMICAL CORPORATION

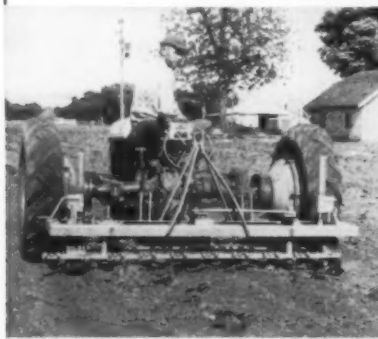
Niagara Chemical Division

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ARMOR

OSCILLATING WEEDER

CULTIVATES... MULCHES
and KILLS WEEDS
BETWEEN PLANTS



Oscillating Weeder, training strawberry runners, weeding and cultivating between plants all in one operation.

The Oscillating Weeder is designed to reduce the cost of hand hoeing in many cultivated crops such as: strawberry plants, both young and old, sugar beets, peas, cotton, corn, mint, potatoes, etc.

Field tests have met with great success and have saved as high as 90% of hand labor costs.

The Oscillating Weeder operates crisscross in the row itself. The coil spring teeth remove the smaller weeds and cultivates between the plants, leaving a nice mulch to prevent water evaporation.

The Oscillating Weeder is the perfect machine for weeding and training runners in young strawberries. This machine weeds about 1½ acres per hour.

Strawberry Whirl-weeder



Strawberry Whirl-weeder cultivating and weeding around strawberry plants.

AT LAST! Here is a machine that will save the grower of Strawberries from \$50.00 to \$100.00 per acre in hand hoeing costs. In addition to weeding it will mulch the ground in and around the strawberry plants, retaining the valuable moisture. Mulching the ground in matted rows of strawberries is very hard to do by the hand hoeing method, but this machine will do it without injury to the plants.

Fully Guaranteed and Carry the F.E.M.A.
Seal of Quality

Write for Literature, Prices and More
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Main Office and Factory
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APPLE MARKETING TREE

McIntosh apple sales from the Apple Marketing Tree shown above increased 48% during the first five weeks of its introduction in a Massachusetts supermarket. Shrinkage from sales handling amounted to about 1/2 of 1% against normal shrinkage of 5 to 10%. The tree was developed by J. P. Sullivan & Co., Ayer, Mass., to prevent excessive handling and bruising of fruit and to stimulate sales with the attractive display.

this spring, according to John R. Cole, of the USDA.

Cole, who is with the Albany pecan laboratory, told members of Southeastern Pecan Growers Association at a recent convention in Radium Springs that pecan trees have been dormant for a longer period this year than usual because of extremely cold weather.

Phil Campbell, Georgia agriculture commissioner, told growers that more legislation with "teeth in it" is needed to enforce regulations on sale of low quality, unlabeled pecans.—Pauline T. Stephens.

New Strawberry

CALIFORNIA—A new strawberry, named the Solano, is particularly adapted for growing conditions in the southern part of the state.

Southern California accounts for only a small part of the 20,000 acres of strawberries under cultivation in the state, and the Solano is expected to benefit growers in this area. Nurseries are now growing foundation stock for the new variety, and some planting has already begun.

Part of the research by Dr. R. S. Bringhurst and Victor Voth, University of California scientists, was subsidized by California Strawberry Advisory Board.

Three New Varieties

MINNESOTA—Three new fruit varieties, Welcome gooseberry and Centennial and Northland apple-crabs, have been added to the list of hardy fruits developed by University of Minnesota for northern states. Stock will be available from nurseries this spring.

Spines of the Welcome gooseberry have been reduced in size and number so that the fruit can be picked with comfort and safety. Bushes are relatively disease resistant. Plants are vigorous and productive; the mildly tart berries are red, of good size, and make a good red jam as well as good pie.

The new apple varieties are called apple-crabs because they are larger than crabapples and resemble apples in their eating quality.

The Centennial is a high-quality eating apple. Medium early, it ripens during late August or early September. A hybrid of Wealthy apple and Dolgo crabapple, the

Centennial bears heavy crops of fruit with a red blush. Fruits retain their prime condition longer than Whitney crabs. The semi-dwarf trees are winter hardy.

The Northland, a hardy and productive variety, is described as the best all-round crab for northern Minnesota. The attractive fruit resembles that of one of its parents, the Dolgo, in shape and bright red color. It is larger than Dolgo, but smaller than McIntosh, its other parent. It is good for sauce, jelly, and pickles, as well as for eating fresh. Trees are medium in size. They are not entirely free from blight or scab. Ripening season is early, beginning in mid-August.

Proposes Quality Marketing

NEW JERSEY—The need for marketing improvement is holding back the blueberry grower more than anything else.

As guest speaker at the annual blueberry open house of New Jersey Agricultural Experiment Station, Phil Alampi, state secretary of agriculture, went on to add that little can be done to improve returns to growers until they agree on a workable state-wide plan. He pointed out that farm groups which want to co-operate within their industry may secure the help of the state department of agriculture in uniting on standards of quality, inspection service, and promotional advertising.

New Jersey blueberry growers have many advantages because of the popularity of their crop, the exceptional serv-

FERTILIZER CIRCULAR AVAILABLE

University of California has issued Circular 466, "Fertilizers and Covercrops for California Orchards," by E. L. Froelich, Agricultural Experiment Station, Davis. Copies are available from your farm advisor.

ice given to this crop by Agricultural Experiment Station, and the large, undeveloped market waiting to be tapped, Alampi said.

Among other speakers was Charles A. Doehlert, horticulturist, who explained that pruning costs can be reduced from \$160 or more per acre to \$75 by adoption of new methods . . . or even to \$45 an acre if pneumatic pruners are used.

As Secretary of Blueberry Variety Council, Ernest G. Christ reported that the council helped revise the state disease inspection service for blueberry propagators. The group also assisted in organizing a new project for the evaluation of blueberry varieties in the market and for the improvement of market quality.

George McCloskey, department of agricultural economics, pointed out that Weymouth, Bluecrop, and Burlington were leaders in market quality. Allan Stretch, plant pathology department, showed that plastic pint cups were more conducive to cooling by air-blast than wood veneer or wood pulp cups. Air-blast cooling, he said, will probably offer the greatest opportunity for lengthening the period of good quality in the retail market.

Philip E. Marucci, entomologist, reported on a superior bait which is highly attractive to the blueberry maggot. When combined with malathion in a wet spray, an extremely high degree of control is obtained. Marucci also discussed use of a water spray by aircraft or ground equipment in solving what has been the worst "bottleneck", lack of sufficient calm weather for aircraft dusting. Windy weather frequently throws the dusters off schedule, and proper timing is just as

AMERICAN FRUIT GROWER

From Du Pont... proven fruit fungicides that meet the need of every fruit grower!



**"THYLATE"—for top disease control
at a new, low price**

Du Pont Thylate® thiram fungicide, a proven fungicide among fruit growers, provides effective control of more apple diseases than any other registered fungicide. "Thylate" permits fine finish of all varieties, including Golden Delicious.

"Thylate" gives excellent protection against scab and rust... can be combined with mercury curatives for greater potency. "Thylate" is also highly effective as a buffer spray between sulfur and other summer fungicides.

Try "Thylate"—now available at a new reduced price to give economy-minded growers complete control of apple diseases—plus fine fruit finish.

• These six varieties were sprayed with Du Pont's new all-variety fungicide, "Thylate."

**"FERMATE" controls more diseases on
more fruit than any other fungicide**

Du Pont Fermate® ferbam fungicide is the most versatile fruit fungicide available... relied upon by growers for more than 16 years for effective disease control. It offers low-cost protection against scab and most other fruit diseases.

"Fermate" gives positive protection to apples, cherries, peaches, pears, raspberries, currants, cranberries, gooseberries, blueberries, boysenberries, blackberries, plums, prunes and dewberries.

Improve quality and bring down your cost-per-bushel disease control with "Fermate." Long-term tests have proven that "Fermate" promotes bigger yields... maintains orchard vigor.



• This McIntosh tree in the Davis Orchard, Bolton, Mass., has been protected against both scab and rust for 16 years with Du Pont "Fermate."

**MARLATE® 50—for effective
protection of apples and cherries**

Kill both codling moth and curculio on apples—use Du Pont "Marlate" 50 methoxy-chlor insecticide. On cherries, "Marlate" 50 eliminates the need for arsenic... protects fruit from one spray to the next... doesn't contribute to dry stem.

**PARZATE®—ideal "top-off"
spray for late apple diseases**

For late summer control of sooty blotch and flyspeck, use light-colored, mild Du Pont "Parzate" zineb fungicide to assure top fruit yields. "Parzate" leaves no harmful residue on fruit... can be applied right up to harvest time.

On all chemicals follow label instructions
and warnings carefully.



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



For All-Season Scab Control Insist Upon Captan 50-W

To Stop Powdery Mildew Add Stauffer's Mag 70 Sulfur

Nothing controls scab from pre-pink to harvest, like Captan.

In pre-bloom sprays, combine Captan and Stauffer's Mag 70 sulfur paste to knock out mildew. Use Karathane* instead of sulfur in post-bloom sprays.

Captan not only stops scab, but also checks fruit rots and other summer diseases. It pays for itself many

times over in better quality fruit . . . fancy finish . . . heavier harvests.

An all-season Captan spray program makes sense because it makes more money for you . . . not only this year, but in years to come.

Your local dealer has free Captan Spray Charts for apples and peaches. They tell you what sprays to use and when to use them. Ask him for your free copies today. Or write Stauffer Chemical Company, 380 Madison Avenue, New York 17, N. Y. *Reg. TM



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important as proper materials.

Under the new plan for certification of freedom from stunt disease, William Metterhouse, state department of agriculture, said that propagators concentrate "mother" plants in a small area, cutting them down annually to produce large quantities of propagating wood. Quite accidentally, he commented, this was a boon during the 1957 drought, when other bushes made poor growth of propagating material.—Charles A. Dochler, *New Jersey Agr'l. Exp. Sta., New Brunswick.*

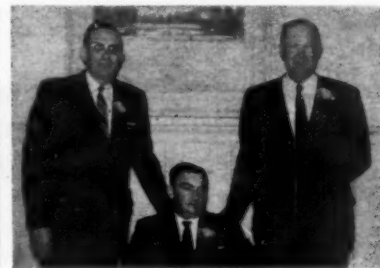
Production Keynotes Meeting

OHIO—The theme, "Production Is the Key to Successful Marketing," marked the recent 111th annual meeting of Ohio State Horticultural Society in Columbus.

Dr. Freeman S. Howlett, head of the department of horticulture at Ohio State University, advised growers not to place too much reliance on gimmicks to market their fruit, regardless of quality. "Marketing research is important, but first consideration should be for the contents and not the container," he said.

Dr. Howlett advised growers that Ohio agriculture would be in dire straits for lack of college-trained research and extension specialists. "We have so few students in agriculture at Ohio State that we don't know whether we can continue to teach some courses," he said.

New president of the society is Mason McConnell of Ravenna; with Bernard Mumma, Dayton, first vice-president; Paul Thornburg, Ashland, second vice-president; C. W. Ellenwood and Thomas E. Fowler, both of Ohio State Agricultural Experiment Station, Secretary and assistant secretary, respectively; and I. P. Lewis, New Waterford, treasurer.



NEW OFFICERS

New officers of Mutual Peach Growers Society elected at North Carolina Annual Peach School are W. H. Rummage, of Ellerbe, president (seated); John C. Wyatt, of Candor, secretary-treasurer (left); and H. Page McAuley, of Candor, vice-president (right). The Society's one-cent assessment on trees three years or older accounted for a successful promotion and advertising program last year.

Insect Control Research

WASHINGTON—Two new research men have been assigned to the state under a joint Washington State College-USDA program for fruit insect control research in the state.

Marvin H. Brunson is located at the federal fruit insect research laboratory in Yakima. He worked for USDA at Moorestown, N.J., most of the time since 1930 on both the Japanese beetle and oriental fruit moth.

Dr. Ford H. Harries, formerly stationed at Phoenix, Ariz., has joined the WSC's Tree Fruit Experiment Station in Wenatchee.

Dr. Stanley Hoyt and Everett Burts also were added to the USDA-WSC team this fiscal year.

AMERICAN FRUIT GROWER

Nursery Regulation

FLORIDA—Nurseries producing trees for commercial citrus groves must be certified free of the burrowing nematode. This regulation by State Plant Board went into effect February 1 to prevent further inroads of the spreading decline disease.

Nurserymen wishing to set up new operations for commercial citrus tree production must obtain site approval before the nursery is established.

Infested and suspicious areas, properly fumigated under supervision of an inspector and left fallow for six months, may receive site approval if they are the required distance from domesticated or infested plants. Plants from nurseries on unapproved sites, or on sites which later become disqualified, must be hot-water treated before moving from the nursery.

Strawberry Costs, Returns

WEST VIRGINIA—Production costs per acre of strawberries grown under the state's conditions have been estimated at \$805, with return figures placed at \$945.

These estimates were prepared by Rural Development Program of Central West Virginia and Weston Farmers Market. Cost figures have been kept purposely high, and return figures, low.

The production estimate includes the following expenses: 5000 plants, \$75; tractor work soil preparation, \$25; fertilizer, \$30; containers, 75; crates, \$10; picking, \$500; mulch, \$50; weed killer (Craig herbicide), \$10; and spray for grey mold, \$30. If 5000 quarts of berries are sold at 35 cents each, receipts would total \$1750, minus \$805 production costs, leaving a final figure of \$945.

CALENDAR OF COMING MEETINGS & EXHIBITS

Apr. 11-18—15th International Horticulture Congress, Nice, France.—P. Chaunier, Sec'y, 84 Rue de Grenelle, Paris, France.

Apr. 13—Ohio Nut Growers Association annual spring business and swap meeting, Kingwood Center, Mansfield, Ohio.—Elbert M. Shelton, Sec'y, 1468 W. Clifton Blvd., Lakewood 7.

Apr. 24-25—Co-op Managers and Directors Conference, Chinook Hotel, Yakima, Wash.

May 1-2—31st Annual Shenandoah Apple Blossom Festival, Mrs. Jean James Demorest, Publicity Director, Winchester, Va.

May 11-14—Processed Apples Institute, Inc., 7th annual meeting, Seaview Country Club, Absecon, N. J.

May 25-28—Super Market Institute, Atlantic City, N. J.—Institute headquarters, 500 N. Dearborn St., Chicago 10, Ill.

June 19-20—National Apple Institute annual meeting, Yakima, Wash.; June 21-22—tour.—Truman Nold, Exec. Sec'y, Washington Bldg., Washington 5, D. C.

June 25-27—Entomological Society of America, Pacific branch, 42nd annual meeting, El Cortez Hotel, San Diego, Calif.

July 17—Pennsylvania, West Virginia, Maryland and Virginia state horticultural societies combined summer meeting, Moore and Dorsey properties, Berryville, Va.—John F. Watson, Sec'y, Staunton.

July 23-30—International Apple Association, Queen Elizabeth Hotel, Montreal, Canada.—Association headquarters, 1302 18th St., N. W., Washington 6, D. C.

Aug. 20—Purdue University departments of horticulture and plant pathology Orchard Day, Purdue University, W. Lafayette, Ind.—R. B. Tukey, Assoc. in Horticulture, Purdue University.

Sept. 24-26—Florida Fruit and Vegetable Association 15th annual convention, Hotel Fontainebleau, Miami Beach.

Sept. 29-Oct. 1—Texas Citrus and Vegetable Growers and Shippers, Shamrock-Hilton Hotel, Houston.—Organization Headquarters, Harlingen.

Oct. 9-18—National Apple Week Association, Inc., fall national apple promotion.—National Apple Week Ass'n, Inc., 1302 18th St., N. W., Washington 6, D. C.

APRIL, 1958



Captan 50-W Spray Program Controls Major Fruit Diseases All Season Long

Low-cost control offers you bigger profits every year

An orchard spray program based on Captan 50-W, the all-season fungicide, controls major fruit diseases from pre-bloom to harvest.

For example, scab and powdery mildew may raise havoc in your orchards. To control both diseases, simply combine Captan 50-W and microfine sulfur (at about half dosage each) in all your pre-bloom sprays.

Every dollar you invest in Stauffer's new spray program pays off in higher yields, better quality fruit and bigger profits . . . this year, next year and in years to come.

Your local Captan 50-W dealer has free Stauffer Spray Charts for apples

and peaches. They tell you what sprays to use to control every fruit pest from apple scab to sooty blotch. They also contain many helpful hints about the best materials to use for special problems.

Why wait? Ask your dealer today for your free Stauffer Captan 50-W Spray Charts. Or write: Stauffer Chemical Company, 380 Madison Ave., New York 17, N. Y.



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Omaha • Los Angeles • Tampa • North
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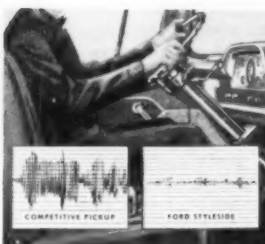


This F-100 Ford Styleside Pickup is the lowest-priced* pickup with cab-wide box. It gives you more load-space . . . easier side loading, too!

You'll reap a bumper crop of benefits from a '58



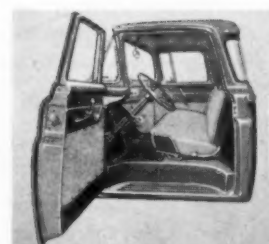
Greater pickup loadspace! It's the lowest-priced pickup with cab-wide box, gives 23% more loadspace than the traditional pickup box. Side loading is easier, too!



Smooth, comfortable ride! Scientific Impact-O-Graph tests prove Ford gives you the smoothest ride of any half-tonner—it's a ride mighty close to that of a car!



Gas savings up to 10%! America's most modern 6-cylinder truck engine has new economy carburetor with new vacuum control valve, improved accelerator pump system.



Safer, more comfortable cabs! Driverized cabs have inboard step, suspended pedals, Lifeguard steering wheel, double-grip door locks, Hi-Dri ventilation.

AMERICAN BUSINESS BUYS MORE FORD TRUCKS THAN ANY OTHER MAKE!



B FORD PICKUP

...and low price is only one of them!



Low-cost replacement parts!
Ford replacement parts prices are traditionally low . . . in many cases substantially lower than those of other truck manufacturers.

Anyone who compares price tags knows that Ford pickups are priced with the lowest. But that's just the start. Running costs are low, too. Only Ford offers economical Short Stroke power in both Six and V-8. Replacement parts prices are low, and an independent study by insurance experts *proves* Ford Trucks last longer. Small wonder Ford Truck resale values are traditionally high.

Look at Ford's extra values . . . smoothest ride of any pickup . . . greater loadspace . . . modern styling . . . and you'll agree there's a bumper crop of benefits in Ford for '58. See your Ford Dealer soon.

*Based on a comparison of manufacturers' suggested list prices.

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!

**One Man and One Tractor
can hoe
1000 trees a day!**



with a TM-100 TREE MULCHER

Designed to fit the needs of any fruit grower, the HARROMATIC TM-100 with one or two circles around the trees clearly cultivates—mulches even the toughest grass sod thoroughly!

The 32" cutting head extends 5' from rear tractor wheel, permits mulching right up to the tree trunk.



with a TM-400 TREE MULCHER

The HARROMATIC TM-400 attaches easily and quickly to all tractors with 3-point or 2-point hydraulic lift.

32" or 42" cutting heads are available. Hinged head permits mulcher to follow contours . . . even works on banks or terraced orchards or groves. Folds for easy transport. Get the facts on how a HARROMATIC Tree Mulcher can save you work—time—and money!

MULCHER DEVELOPED FOR CITRUS TREES ALSO AVAILABLE

Send coupon to Dept. 1 for Details

Please send full information on the TM-100 and TM-400 HARROMATIC TREE MULCHERS.

Name _____

Address _____

Town _____ State _____

No. of acres of orchards _____

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The HARROMATIC Corp.
Shippensburg, Pennsylvania

PEACH GROWERS LAY PLANS FOR HANDLING 1958 CROP

**NPC meeting discussions stress need of pre-selling
and getting the "Queen" to market bruise-free**

By **R. T. MEISTER**
Editor

THE National Peach Council, voice of peach growers large or small, held its annual meeting the latter part of February in Columbia, S. C. Host was South Carolina Peach Council.

A primary job of NPC is to promote a good demand for peaches and thus help to maintain a profitable price level. Supermarket retailing demands more promotional effort than ever before on the part of grower groups.

A guesstimate of the 1958 peach crop indicated the amount of selling that will need to be done. A total crop of 70 million bushels was forecast, some 8 million over the five-year average. Of this total 45 million are freestones and the remainder California clings, grown primarily for canners. In addition, Ontario estimated 2,500,000 bushels and British Columbia 500,000.

Promotion methods discussed at the meeting included radio advertising, efforts of local and state peach queens, newspaper publicity, slogans, and posters.

Individual or local groups of peach growers can get additional information and assistance in their promotional efforts by contacting Harold Hartley, Secretary-Treasurer, National Peach Council, 302 W. Walnut, Carbondale, Ill.

NPC also publishes a membership newsletter which contains peach promotion ideas. In addition, the council works closely with buyer and consumer representatives, chain stores, and other retail outlets to keep the trade up-to-date on the size of the crop and to plan for better movement of the crop.

Latest cultural methods were also discussed, as well as peach root diseases. In the South, the short life of peach trees is a big expense to growers and the reason for the high mortality is still unknown.

Growers learned of a new device which increases labor efficiency 27% in ring facing bushel baskets. A plastic form makes it possible for packers to use both hands in moving peaches to the face instead of just one.

The advantages of field box pads were listed. A polyurethane pad in the bottom of the field box reduces

the number of culls by decreasing bruising in the amount of 3.47 bushels out of every 100 bushels delivered to the packing house.

It was pointed out that the bruise control program in Washington showed that most damage to peaches was done when the picker took hold of the peach.

A package is needed which will carry peaches to market efficiently and with little or no bruising. The basket probably is still the most popular



Retiring NPC president Mark Boatwright, Johnston, S.C. (left), confers with (l. to r.) Robert Rice, Palisade, Colo., newly elected president; A. E. Bassham, Wynne, Ark., second vice-president; Harold J. Hartley, Carbondale, Ill., secretary-treasurer. Not shown is R. Samuel Dillon, Jr., Hancock, Md., first vice-president. Boatwright was elected chairman of executive committee.

peach package, either in the one-half, three-quarter or full bushel size, but it does not prevent bruising.

One grower related his experience with "Fanci-Pak" consumer package. It is more expensive, he said, than customary packs but a test showed that 92% of the response favored the Fanci-Pak. Fanci-Paks are packed in a wirebound master container or in a special fiberboard box.

It was pointed out by a representative of a large eastern chain that probably the best package received at the chain is a two-layer wooden box in which peaches are individually wrapped or packed in crinkle cups. It is packed by California growers and known as the LA (Los Angeles) lug and Sanger lug.

The Universal crate, either the five-ninths or ten-ninths, is better than the bushel basket but it, too, causes too much bruising, he commented.

Hydrocooling, it was pointed out, should reduce the heat in peaches to 42°, which is the optimum. To get the maximum benefits from hydrocooling, only well-matured peaches should be cooled.

THE END.

AMERICAN FRUIT GROWER



NO MITE IN SIGHT

long after you spray with

ORCHARD® BRAND

GENITE® EM-923

AMAZING "SURE-SHOT" MITICIDE

No Guesswork—Proved! GENITE EM-923 is far superior to any other method of dealing with early mite problems. Thousands of growers from coast to coast swear by it and will accept no substitutes! *That* kind of loyalty has to be *earned* and GENITE EM-923 has done this—on apples, peaches, pears, plums, and prunes.

Powerful! GENITE EM-923 gives control far into the summer. You get effective, long-lasting control of European red mite and clover (brown almond or bryobia) mite. You need fewer mid-summer sprays... reduce residue problems of late

season sprays. GENITE is virtually non-toxic to bees and other useful insects—doesn't upset nature's balance.

Prove It to Yourself! You'll never know what a tremendous difference GENITE EM-923 can make until you *try* it. Make *this* year's crop the one on which you start with GENITE EM-923, the "Sure-Shot" miticide. Recommended use is from pre-pink to full bloom. See your friendly Orchard Brand dealer right away, to make sure you have an ample supply.



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Allied Chemical & Dye Corporation

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Serving Agriculture from Coast to Coast



NOW...
for Orchard Use

Bush Hog
ROTARY CUTTERS

New
OFFSET

MODEL
(7 ft. swath)



- Mulches Prunings where they fall!
- Eliminates Brush disposal problems!
- Saves Time, Saves Labor, Saves Money!

This BUSH HOG Offset model permits easy tree circling. Cuts and mulches brush and prunings in one easy, quick operation. Turns waste cuttings into soil improving litter which helps retain moisture around trees. Works fast and efficiently — reduces labor needed at pruning time — saves money in labor and fertilizer costs.

Includes famous BUSH HOG features—one piece arc-welded wrap-around steel frame which retains all litter until completely mulched . . . famous "free-swinging blades" hold position by centrifugal force and fold back to strike again at hard to cut objects.

Easily converts to conventional cutter — by removing offset belt drive. BUSH HOG cutter can be connected to direct power drive shaft for pasture mowing, brush disposal and land cleaning jobs.

SEND COUPON

For full details and name of your nearest BUSH HOG Dealer

BUSH HOG MANUFACTURING COMPANY
Selma, Alabama

Dept. 3

Name.....
Address.....
City..... State.....

Stone Fruits



Some trees make fairly satisfactory growth when interplanted with strawberries, especially when unnecessary irrigation is avoided.

CHERRIES

Interplanting and Verticillium

INTERPLANTING cherries or other stone fruits with strawberries has become a more common practice in recent years in the Santa Clara Valley of California.

This is not a recommended practice because of the different water requirements of the two crops and because of possible disease factors. Where cherries have been planted on land previously cropped to tomatoes, there has been trouble with verticillium in the cherries. Strawberries, like tomatoes, tend to increase the verticillium fungus in the soil, although not to the same extent.

Symptoms of verticillium disease in cherries are not as striking as those in apricots, almonds, or peaches. In these crops verticillium causes quick wilting and killing of small or large portions of the trees, depending on degree of infestation of the soil, fungus strains, and climatic conditions.

In the cherry, branches are not killed except in extreme cases. Instead the lower spurs and leaves die, sometimes so rapidly that the leaves remain attached. Also basal leaves of current season shoots may drop off, giving the tree an open and bare appearance. These trees are more apt to sunburn and be damaged by borers. Only in extreme cases is the black-heart condition, so common in other stone fruits, produced in cherry.

Strawberries require frequent irrigation, especially during the second and third years. Even though these may be fairly shallow irrigations, in actual practice the interplanted trees are usually overwatered. Cherries, especially on mahaleb root, are very sensitive to excess water. As a result, such trees may grow poorly or die.

The damage to the trees resulting from intercropping practices may be reduced by leaving 4 to 6 feet of unplanted ground on each side of the trees. Careful attention to the water needs of both the trees and the intercrop can prevent unnecessary irrigations and needless damage.

Stockton Morello, one of the rootstocks used for cherry, is more tolerant of excess moisture than either mazzard or mahaleb. On the heavier soils it would probably be advisable to use this rootstock. It must be borne in mind, however, that other factors, such as the desired ultimate size of the trees, bearing habit, and longevity are factors to be considered in choosing a rootstock.—George Nyland and H. S. O'Reilly, University of California, Davis.

PEACHES

Moderate Pruning

IMPORTANCE of good tree training was dearly emphasized on Thanksgiving day in 1950 when the temperature at Southhaven, Mich., dropped to 19° below zero. This sudden early freeze wiped out a third of the peach trees in Michigan, and impaired many more.

A lesson in tree training was learned, however. Peach trees with five or six main scaffold branches were more severely damaged than those with only two or three branches with wide-angled crotches.

Now peach growers from Michigan southward are paying particular attention to training trees to two or three good scaffold branches during the first two years after setting. This means training more or less to an open-center tree, rather than the modified central leader with five or six main branches. It is a difficult

**Profit
Stealer!**



Cancel out Plum Curculio with dieldrin

Plum curculio and other cat-facing insects cost growers millions of dollars worth of marketable fruit each season. You can protect your fruit profits by knocking out these pests with powerful dieldrin.

Dieldrin is the answer to the fruit growers' need for an economical plum curculio control. Its killing action is long lasting. Many days after application, it puts an end to cat-facing insects no matter how they contact it.

You can apply dieldrin as a spray during pre-bloom or post-bloom periods. For most effective results, check the recommendations of state and federal authorities for the use of dieldrin in your area.

This season, get bigger yields of top-quality fruit. Stop plum curculio and other cat-facing insects with dieldrin. Dieldrin is available under well-known brand names from your insecticide dealer. See him today.

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55 Marietta St. N. W., Atlanta 3, Georgia





**"Styrofoam helped us build first-class cold storage
for \$2.00 per stored box"—Drew Fruit Farms**

"In my newest cold storage warehouse for apples, I felt Styrofoam® would provide a long lasting, completely satisfactory unit," says Mr. Ben Drew, owner of Drew Fruit Farms, Westford, Mass. "One that would cost less to erect and less to maintain. After three seasons, my experience with Styrofoam has been favorable in all these respects.

"Using Styrofoam, we were able to construct a first-class storage area for less than \$2.00 per stored box. This cost includes refrigeration equipment and installation of electricity. "As it does not absorb moisture, Styrofoam does not require

a vapor barrier. This saved us the expense of putting a moisture-proof material around the outside of the insulation. In spite of the wide range of outside temperatures, Styrofoam maintains the proper storage temperature of 31°–32° F. without undue strain on our refrigeration equipment.

"In my operation, Styrofoam has proven itself as an insulation material for apple storage."

For more information about Styrofoam® (a Dow plastic foam) and its use in fruit storage applications, write to THE DOW CHEMICAL COMPANY, Midland, Mich., Dept. PL1916N.

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Unyielding water resistance—
STYROFOAM®
 for pipe covering insulation

Low-temperature pipe covering made of Styrofoam® does an excellent job and lasts a lifetime. Its unyielding resistance to moisture and its permanent low thermal conductivity prevent condensation and dripping—reduce heat transfer.

Styrofoam will not crack or split from changing temperature and it is not subject to ice buildup around valves. It's lightweight and easy to apply—requires no maintenance. A complete line of pipe and vessel covering made from Styrofoam is available from a number of fabricators. For their names and more information, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1916N.

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APRIL, 1958

problem to get wide-angled crotches on trees trained to the latter method.

Once the tree is properly trained to its basic framework, little or no pruning is required for the next three or four years. During these years of light production, trees need all the leaf surface they can produce in order to form a tree that will be in top production by the time it is six or eight years old. Once heavy annual production has begun, annual pruning becomes necessary to maintain the proper size and shape of the tree, and to insure maximum production of top quality fruit.

As a peach tree matures and becomes thick with small branches, many of the lower ones die off rather young. This means that each year fruiting wood is pushed farther and farther out on the main scaffold limbs.

If left unpruned, a good scaffold limb carried so far from the main trunk will break under its fruit load. To prevent this development, the upper and outer branches are cut back a little each year to induce lower branches into blossoming and fruiting. Sometimes pruning forces dormant buds to grow and replace dying branches, thus preserving the framework of the tree for good production.

How much pruning should a mature bearing peach tree receive? The answer lies with the variety, the state and vigor of the individual tree, and with the grower himself, concerning what he expects in production.

Dr. John C. Cain, of the New York Experiment Station at Geneva, suggests leaf area as one of the guiding principles. You want the largest leaf area possible, because leaves make fruits grow and develop.

Tests at the Geneva station reveal that for a peach to reach good market size requires food production from 50 to 75 leaves, or about 350 square inches of leaf area. Many factors, such as soil, variety, and weather, will vary the necessary number of leaves. The larger the tree, then, the more leaves it will have and the more fruits it will support. Other factors, such as spraying, tillage, and harvesting, will guide you in how big to let trees grow.

Lightly pruned trees will have more extensive root systems, hence, can feed from a greater soil area. Wider spacings should be employed than where trees are pruned more severely.

In a Missouri test with young Elberta trees set 24 feet apart, Dr. A. D. Hibbard found that light or corrective pruning was most desirable and least costly. This was the



At beginning of second growing season while Sunhaven tree was still dormant, Frank Street, Henderson, Ky., removed all branches except three for main scaffolds; in summer, the new growth is rubbed off the main crotch area.



A 13-year-old Redhaven tree in Ohio orchard before annual pruning. Note heavy branching, shoot growth distributed over entire tree.



Same tree after pruning; considerable heading back and thinning out of shoot growth. Some lower branches removed to aid orchard mowing.



Severe heading back often needed on old trees. Best to cut back to large, side branch, as shown on this 15-year-old Golden Jubilee tree. Little pruning, such as thinning out, needed.

Use

Crag
BRAND

Sesone
HERBICIDE-1



to SAVE MONEY on STRAWBERRY WEEDING!

Sesone kills weed seeds as they sprout. It saves hoeing and weeding by preventing annual broadleaf and grass weeds from getting a start. Use Sesone in your well-established strawberry fields following a clean cultivation in spring, summer, or fall. It will not harm strawberry leaves.

For best results in new plantings, start using Sesone no sooner than 10 days after setting, to allow plants time to get established. In the bearing year, start Sesone application as soon as the ground can be worked, and use it monthly after cultivation except during the week before picking starts. Each application keeps out weeds for three to six weeks. If soil is dry, irrigate lightly after treating, but use water sparingly. By using Sesone, you'll save most of your weeding labor . . . and have easier picking of a bigger, better crop.

**FILL IN
THIS COUPON NOW
TO GET YOUR
FREE SAMPLE
OF SESONE
(enough to treat
200 square feet)**

**CRAG Agricultural Chemicals
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Please send me my free sample of Crag Sesone.
I grow strawberries for ☐ sale ☐ plants ☐ home use.

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result of six crop years, beginning with the third growing season.

Corrective pruning consisted of removal of interfering branches only. No heading back or thinning out was done. Amount of wood removed in this method was only a third of what was removed from trees given moderate pruning, and it took only a fifth as much time.

Under the latter method, from half to a third of the side shoots were thinned out each year, and about a third of the terminal growth was removed. Such trees had reduced yields, the most limb breakage, took the most time, and produced the most shoot growth. However, the trees were smaller and possessed less

N. J. FOX & SONS, INC.
SHELBY MICHIGAN



A FOXY IDEA!

What's in a name? A good advertising gimmick, in many cases! The photograph above shows the brightly-colored motif used by fruit grower N. J. Fox & Sons, of Shelby, Mich. It decorates the envelopes and letterhead of these fruit growers, and is an attractive eye-catcher that really imprints the Fox name in the minds of buyers and other business correspondents. The fruits (cherries, peach, plums, and apple) are in natural colors that even a mailman can't resist! Foxy, no?

leaf area at the end of the experiment than did corrective-pruned trees.

In North Carolina similar results were obtained by Dr. G. W. Schneider and Dr. F. E. Correll when they compared light, medium, and heavy pruning of young Dixired and Redhaven trees.

The experiment started with three-year-old trees and continued for four years in the Sandhills area. Heavy pruning consisted of severe heading back, considerable thinning out and cutting back of most of the remaining shoots. Lightly pruned trees were headed back slightly to outward shoots; only crossed, upright, or weak crotched limbs were removed; and only a little thinning out of shoots was done. Intermediate pruned trees were about half way between these two extremes.

This study reveals some varietal differences related to response to pruning severity. First, Redhaven

AMERICAN FRUIT GROWER

averaged about a bushel more per tree than did Dixired. Lightly pruned Dixired trees yielded significantly more fruit each year than did either medium or heavy pruned trees. But with Redhaven, in only two years—the first and third—did light pruning outyield the other two methods. The second and fourth crops showed no significant differences in yield with any of the pruning methods.

Another varietal difference was found in fruit size. With Dixired, each year the lightly pruned trees produced the greatest number of peaches 2 inches and up. But with Redhaven, the lightly pruned trees outdid the others only in the first year.

In both varieties, fruits were more highly colored in the lightly pruned trees than in the heavily pruned trees.

The question is frequently raised whether it is advisable to delay peach pruning until after bloom, to wait and see if the crop gets through the fateful frost period. To shed some light on this, Dr. Leon Havis, of USDA, Beltsville, Md., set out to see what effects time of pruning had on growth and fruit production.

Twelve-year-old Elberta trees were pruned moderately in order to have about 1300 to 1400 fruits per tree with no hand thinning.

Compared in the test were: pruning in the dormant stage, at full bloom, at shuck-fall, at three weeks after shuck-fall, and no pruning.

A distinct advantage was found in the dormant pruning. The yield was about the same from dormant pruned trees as from trees receiving no pruning, but fruits were larger. They also produced the longest shoot growth and the largest number of flower buds per foot of shoot. Here is how the yields and fruit sizes stacked up in the test:

	Yield bu. per tree	No. peaches per bu.
Dormant	7.7	171
Bloom	6.2	188
Shuck-fall	5.3	167
3 weeks after shuck-fall ...	4.7	162
No pruning	8.2	214

The difference between dormant pruning and waiting until three weeks after shuck-fall was 3 bushels per tree. Thus, on an acre basis you are cutting your yield by about 240 bushels when you prune this late.

Our best peach pruning advice at the moment seems to be this: train the tree to two or three strong branches in the first two years, apply corrective pruning during the next three or four, then graduate into light pruning, and as trees age, practice moderate to heavy pruning only in older trees, as your orchard needs dictate.—Eldon S. Banta.



ONE OR BOTH SIDES



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Now you can spray apples, peaches, cherries with a big volume high velocity air stream—35,000 cfm. with the Hardie Duo-Fan Model DF-24B or 50,000 cfm. with the new Hardie DF-26D . . . Use either concentrate or dilute spray . . . Enjoy absolute pest control at lowest cost per acre . . . The higher price you get for quality fruit pays for the sprayer . . . You can also spot spray with a hand gun . . . Spray shrubs, gardens, weeds, brush . . . Apply insecticides, liquid fertilizer, disinfectants . . . Flush animal stalls, pens . . . Whitewash buildings, fences . . . Clean tractors, trucks, autos . . . Put out fires.

You can do all this with one sprayer—the 2-fan Hardie Duo-Fan Model 24B or 26D designed, built and priced to give the grower both air stream and high pressure spraying in one compact, streamlined, Hardie quality unit. It's two sprayers for the price of one. Write for literature. Ask your dealer.

OVER 80,000 CUBIC FEET OF AIR PER MINUTE



If you have a big acreage pest control job in orchard or grove, you need the magnificent new Hardie Duo-Fan Model DF-40, delivering more than 80,000 cubic feet of air per minute—the largest air stream sprayer ever built, and the most modern. Another model, the Hardie Duo-Fan Sprayer Model 26D, is especially designed for average fruit acreage. Delivers air at 50,000 cfm. Hardie also builds High Pressure Sprayers for orchard and row crop spraying in a wide range of sizes and styles.



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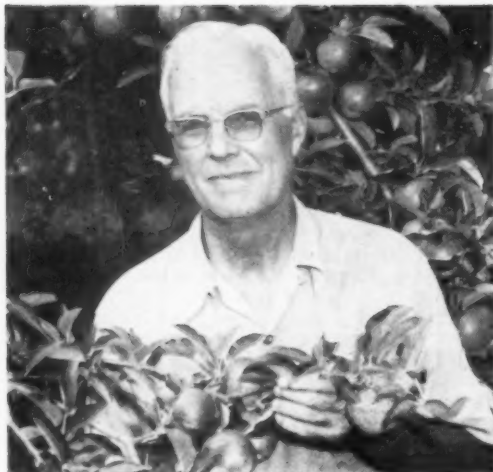
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say leading fruit growers



"Best crop in my experience. This year's crop represents the best crop in my experience in color and finish and is free of insects and disease. I will harvest more apples this year and I am expecting more money per box. I attribute this to the fine work of ORTHO products."

From a field interview with R. D. Massie, Tiger Mountain Orchards, Tiger, Georgia.



"I am convinced that I could not have stayed in the apple business without ORTHO products backed by ORTHO field service. I have been using ORTHOCIDE as a fungicide in the complete ORTHO program for the past four years. Until I changed to the ORTHO program my yields per acre were low and had been decreasing for several years. With my first year on the ORTHO program, my yields and quality substantially increased and this trend has continued."

From a field interview with Kermit Liddell, Liddell Farms, Burt, Niagara County, New York.



ORTHO Field Service contributes immensely. "Our customers expect and demand high quality and fine finished fruit. For many years we had considerable difficulty meeting these requirements. Five years ago we began using a spray program with ORTHOCIDE (captan 50 wettable). A spray program built around ORTHOCIDE produces without doubt,

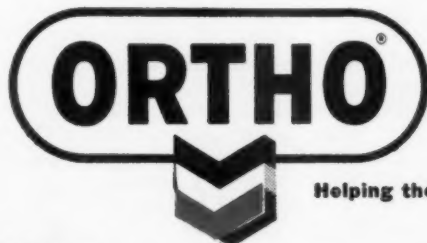
the highest finished quality and yield in our experience as fruit growers. We are particularly interested in the ORTHO field service which contributes immensely toward achieving these goals. It is a real pleasure to be associated with fine ORTHO products and field service."

From a field interview with Charles (right) and Rewellien Mohr, Fogelsville, Pennsylvania.

Don't delay—start an ORTHO program today!

These reports are just a few of hundreds received from leading fruit growers who have found that ORTHOCIDE (captan) in an ORTHO program helps them grow better quality fruit. And, remember, only ORTHOCIDE, a superior formulation of

captan, provides: (1) Exceptionally fine particle sizes. (2) Better sticking, wetting, and spreading agents. (3) Superior carrying agents. (4) Compatibility with the full ORTHO line of insect and disease control products.



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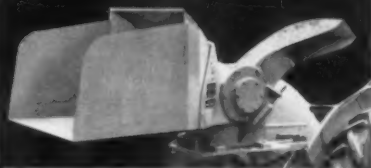
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Save Labor and Save MOISTURE



Right now, you can save hard summer work in your orchard by chipping tree prunings with a Fitchburg Farm Chipper, and mulch your orchard in one labor saving operation. Wood chips blown around the trunk will hold up to four times their weight in moisture. Moisture helps put your fertilizer to work and the additional moisture will carry your orchards through summer dry spells at top production.

A Fitchburg Farm Chipper is designed to work in your orchard... wherever you can drive your tractor! The high chrome steel blades need only periodic sharpening to keep their tough, keen edges. The patented spring-activated feed plate—exclusive with Fitchburg Farm Chippers—assures you of safe, one-man operation. And you have a One Year Guarantee.

For as little as \$650 you can have a Fitchburg Farm Chipper working for you in your orchard this summer; or the heavy duty brush and bedding chipper can be bought for \$960. Either will give you a good cost return in labor saving and increased fruit production.



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PRUNES

Fruit Thinning

HEAVY crops of small, cheap prunes followed by a light crop of larger-than-necessary premium prunes—this briefly has been the problem of the grower of French prunes in the several prune districts of California.

Thinning during years of heavy crops is obviously the answer to the problem. Chemical and hand thinning offer the most promise of success.

Thinning offers other advantages besides larger sized fruit. Limb breakage, the rule during seasons of heavy crops, is avoided. Many young profitable orchards have been severely damaged by excessive limb breakage, thus reducing the bearing surface for several years to come.

Prune trees "die back" with excessive crops. This dieback can cause death to scaffold limbs. Bearing surface is reduced, and the pruning bill is increased. Thinning eliminates these problems to great extent.

Tonnage can be reduced as much as 40 to 50% by fruit thinning but the increase in fruit size and lower harvest cost more than compensate for the reduced yield and thinning expense.

Blossom spray thinning offers the greatest possibility for large prunes at harvest. Improved quality normally is associated with the increase in size.

Under California conditions, the dinitro materials have proved the most effective spray thinners, DN 289 (Elgetol 318) is the most popular material and somewhat easier to handle than other available dinitro materials.

Under some weather conditions, this burning effect can be overdone, resulting in overthinning. However, more cases of underthinning can be cited than overthinning.

Another problem of blossom thinning is uneven bloom. Under mild California winter conditions, prune trees may bloom over a prolonged period or may open irregularly. One tree may be 90% in bloom, the next, 50%. Dinitro sprays do not affect unopened flowers. Under these conditions a uniform job of thinning is hard to obtain.

Advantages of blossom spray thinning are many. Fruit taken from sprayed trees often show weight increases of 20 to 30% at pit hardening. This increase is obtained before any hand thinning gets underway.

At harvesttime the full benefits of spray thinning are apparent. Less fruit on the trees means lower picking and dehydration costs. Fruit from sprayed trees has more sugar, hence a better drying ratio is obtained. In

all grower trials greater returns per acre were obtained with spray thinning.

Tree response is marked with blossom spray thinning. Little "die-back" is seen in properly-thinned prune trees, while unthinned trees show considerable leaf scorch and "dying" back of the branches.

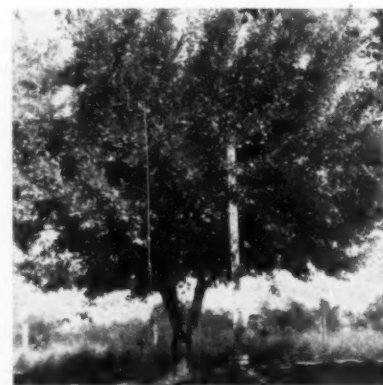
Tree response the second year is equally as great as during the first season. Spray-thinned trees produce a normal heavy crop the second year.

Hand thinning produces prunes approximately 7 to 10% larger than unthinned fruit but cannot compare to the 15 to 20% increase for blossom thinned fruit.

The biggest advantage of hand thinning is that trees can be thinned after the crop has set. A uniform thinning job can be obtained with very little possibility of overthinning.

Several seasons' results with hand thinning trials by the author show thinning in May to be of greater benefit to the trees than to the fruit itself. May-thinned trees show much less "dieback" than unthinned trees.

There is little carry-over effect on



Normal prune tree in a California orchard is pictured above during a year of a light crop.



Photos: O. Lilleland, U. of Calif.

Same tree 1 1/2 years later after overbearing. Note dieback of branches and sparse foliage.

AMERICAN FRUIT GROWER

New! For Fire Blight Control

Agri-mycin® 500*

*A combination Agri-mycin Copper Dust,
more effective, more economical*



Agri-mycin 500, a new formulation of the antibiotics Terramycin,® streptomycin and basic copper sulfate, forms a synergistic action to give increased control against *Erwinia amylovora*, the causative agent of fire blight.

Four years of tests on more than 100 thousand apple, pear and walnut trees have shown that Agri-mycin is the most effective control yet discovered for fire and walnut blight.

Now, it has been combined with basic copper sulfate to give you faster, more effective control of fire blight of pears and apples.

Agri-mycin 500 fights blight within the plant tissues as well as protecting the outside surface as the antibiotics are absorbed directly into the leaves and blossoms of your trees.

This exclusive new patented synergistic formulation of Terramycin, streptomycin and basic copper sulfate is now available to West Coast Growers for the first time.

For growers who prefer not to use a basic copper formulation, Agri-mycin 100 (without copper) is available in both dust and spray powder forms.

Agri-mycin 500 and Agri-mycin 100 in dust and spray powder formulations are now available from these leading West Coast formulators:

L. H. Butcher & Co., Los Angeles
Pacific Guano Corp., Berkeley
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United Chemical Co., Richmond

Agri-mycin® 500*

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Rocket Loppers Last Longer

Extra strong, yet lightweight, perfectly balanced. Cut costs because they won't bend or break in normal use. You'll speed pruning, yet be less tired using ROCKET loppers. Boron-alloy tubular steel handles soak up shock. Comfortable cushion grips prevent blisters, won't slip wet or dry or in gloved hands.

See all three models: A105 (above) for heavy duty; A103, home and garden model; A101, vineyards and light work. TrueTemper, 1623 Euclid Avenue, Cleveland 15, Ohio.



You can feel
the power and
balance in
Rocket loppers

TRUE TEMPER.
THE RIGHT TOOL FOR THE RIGHT JOB

next year's bloom with hand thinning. Hand thinning does not eliminate alternate bearing as does blossom thinning.

Hand thinning costs from \$25 to \$75 per acre, depending on tree size, number of prunes removed, labor. Spray thinning costs run from \$8 to \$12 per acre. Under trial conditions the cost of hand thinning was more than offset by reduced harvest and dehydration costs. This means that hand thinning is commercially practical under conditions in the interior valleys of California.

Test Trials. Growers who have had little or no experience with chemical thinning should set up their own test trial using trees of uniform vigor. Accurate records of yields, dry away, and size are necessary for a good comparison of the advantages of thinning. Young trees and sick trees are particularly liable to injury by dinitro sprays. Sprayers should be shut off when approaching replanted or low vigor trees.

DN 289 at $\frac{3}{4}$ to 1 pint per 100 gallons of water should be used and approximately 300 gallons per acre is necessary. DN 289 is a caustic spray; injury effect and thinning may be accentuated by spraying under windy conditions. The effect of excessive moisture on chemical thinning sprays is not fully understood. When used as weed killers, the effect of dinitro sprays is increased with excessive moisture. It is suggested that sprays be curtailed during and immediately following a rain and just prior to a storm.

Timing is important. Sprays should be applied at 80 to 85% of full bloom. This is best determined by counting a number of open and closed flowers in several parts of the orchard. It is preferable to apply the sprays too early rather than too late. If ideal weather conditions exist when only 65 to 70% of the blossoms have opened, spray operations should begin. —Fred H. Petersen, Farm Adviser, Yuba City, Calif.

Nuts

Georgia Pecans

WHAT are the best practices to follow in growing pecans for profit? Should you fertilize and spray? What varieties are best? What about harvesting?

To find out the answers to these questions, R. G. Burton, Jr., and J. C. Elrod, of Georgia Experiment Station, interviewed 50 commercial pecan

growers located in 14 counties having the most intense production. The 50 growers were selected at random and give a cross section of the Georgia pecan industry.

Completed in 1955, the survey was recently published as Mimeo Series NS36 and can be obtained from Georgia Agricultural Experiment Station, Experiment, Ga.

The 50 growers interviewed had a total of 7951 acres in pecan orchards, which is about 6% of the total trees of the state. The largest orchard visited was 2100 acres and the smallest only 3 acres. Average size was 159 acres.

Varieties.—Most of the trees were of improved varieties and very few were seedlings. The two leaders in the industry, Stuart and Schley, comprised the majority of the plantings. Nine other varieties, Desirable, Farley, Frother, Mobile, Moneymaker, Moore's, Pabst, Success, and Tesche, were planted in considerably smaller numbers.

The most popular number of trees per acre seems to be around 18. There were some orchards with less than 9 trees per acre and some with as high as 27.

Fertilizing.—Of the 50 growers 47 fertilized their orchards. Most of the growers used some kind of fertilizer in order to grow better cover crops. The most common analyses were 4-8-8 and 4-12-12. However, 8 growers did use nitrogen top dressing. Only 15 used fertilizer with the specific intention of fertilizing the trees. Most of these used a complete fertilizer.

Nearly all the pecan orchardists planted a cover crop, and the most common one was oats. Other crops included various combinations of clovers, grasses, vetch, lespedeza, and lupine.

Spraying.—Some growers sprayed but most of the growers did not. Of the total acreage 32% was sprayed, mostly for scab. There was also some spray applied to control weevils and aphids. Bordeaux mixture was used for scab, with toxaphene and DDT for weevils and aphids.

Harvesting.—Mechanical shakers and hand picking were used by about half the growers interviewed while the other half used hand shaking and picking. Workers averaged about 17 pounds per hour. The average rate paid per pound for picking was 2.6 cents. Some growers paid as high as 5 cents per pound, some as low as 1.2 cents.

Marketing.—Four methods of marketing were used: Storing on the farm and selling a truckload at a time; selling the entire crop at one

time; selling by variety as harvested; and selling daily through a local broker.

Nearly all the pecans were sold orchard run with no attempt at grading. Only one producer stated that he used a blower and a screen to clean and grade and only 5 of the 50 growers made any effort at cleaning and sorting.

Georgia is the second largest pecan state in the country, based on the number of improved and seedling trees of all ages. Georgia is by far the largest producer of pecans based on the production of improved pecans by state. **THE END.**

Citrus

Late Bloom

THE Murcott-Smith tangerine represents the climax of a long search for a late-bloom fruit in Florida.

Despite the enthusiasm of growers who had early plantings in the '20's, the fruit did not take hold until the last few years.

Today, this rich, "zipper-skinned" tangerine promises to become one of the top money-makers in the state's citrus industry.

Maturing in February, the Murcott is available long after other specialty fruits have been harvested. Thus, it finds little competition until



Medium size Murcott tangerines. Over 4000 acres of this fruit are planted in Florida.

the late May and June appearance of the peach and melon. And on proper rootstocks, Murcotts can be stored on the tree into summer, extending the marketing season.

The tangerine appears to possess all the attributes for great appeal in the fresh market, and its juice color and unusually high solids insure its demand for processing.

There are over 4000 acres of Murcotts planted in the state, according to an estimate by the Florida Tangerine Co-operative, Lakeland, of which Philip C. Morse, Jr., is secretary-manager. **THE END.**

APRIL, 1958



News about new "CRAG" SEVIN insecticide has already reached many growers through farm magazines and Experiment Station test reports. Several years of performance testing have shown definite values for SEVIN in apple insect control. Limited quantities of SEVIN are now available for the first time to experienced growers for experimental use only.

SEVIN is a carbamate insecticide, a new and different chemical for insect control. It is unlike the chlorinated hydrocarbons, the phosphates, the arsenicals, and other groups of chemicals used against insects.

SEVIN has controlled more than 100 different insect pests. Especially effective against codling moth, SEVIN also controls all other major apple insects. Of special interest is the fact that SEVIN controls some insects which are resistant to commonly-used insecticides. Where mites are a problem, a miticide should be used in addition to SEVIN.

SEVIN is safer to handle than many other insecticides and is less toxic to warm-blooded animals than DDT. It can be used on apples up to a week before harvest.

Because SEVIN controls a wide range of insects, it should be a help in simplifying spray programs. It is compatible with most commonly-used fungicides and miticides. However, highly alkaline materials such as lime reduce its efficiency and should not be used in combination with SEVIN.

"CRAG" SEVIN is now available as a 50% wettable powder for experienced growers who wish to use it experimentally on part of their orchard this year. For a free folder giving detailed information on how to use SEVIN insecticide,

Mail the Coupon now!

UNION CARBIDE CHEMICALS COMPANY

Division of Union Carbide Corporation

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Experimental Insecticide, including directions for use.

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FOR 5 STRAIGHT YEARS... *Ray H. Chamberlain*

won Ohio State Fair Apple S and used a Myers Concentrate Air S

"In getting the insecticides and fungicides on the trees in double-quick time, our Myers Air Sprayer gives our trees the protection they need at the time they need it".

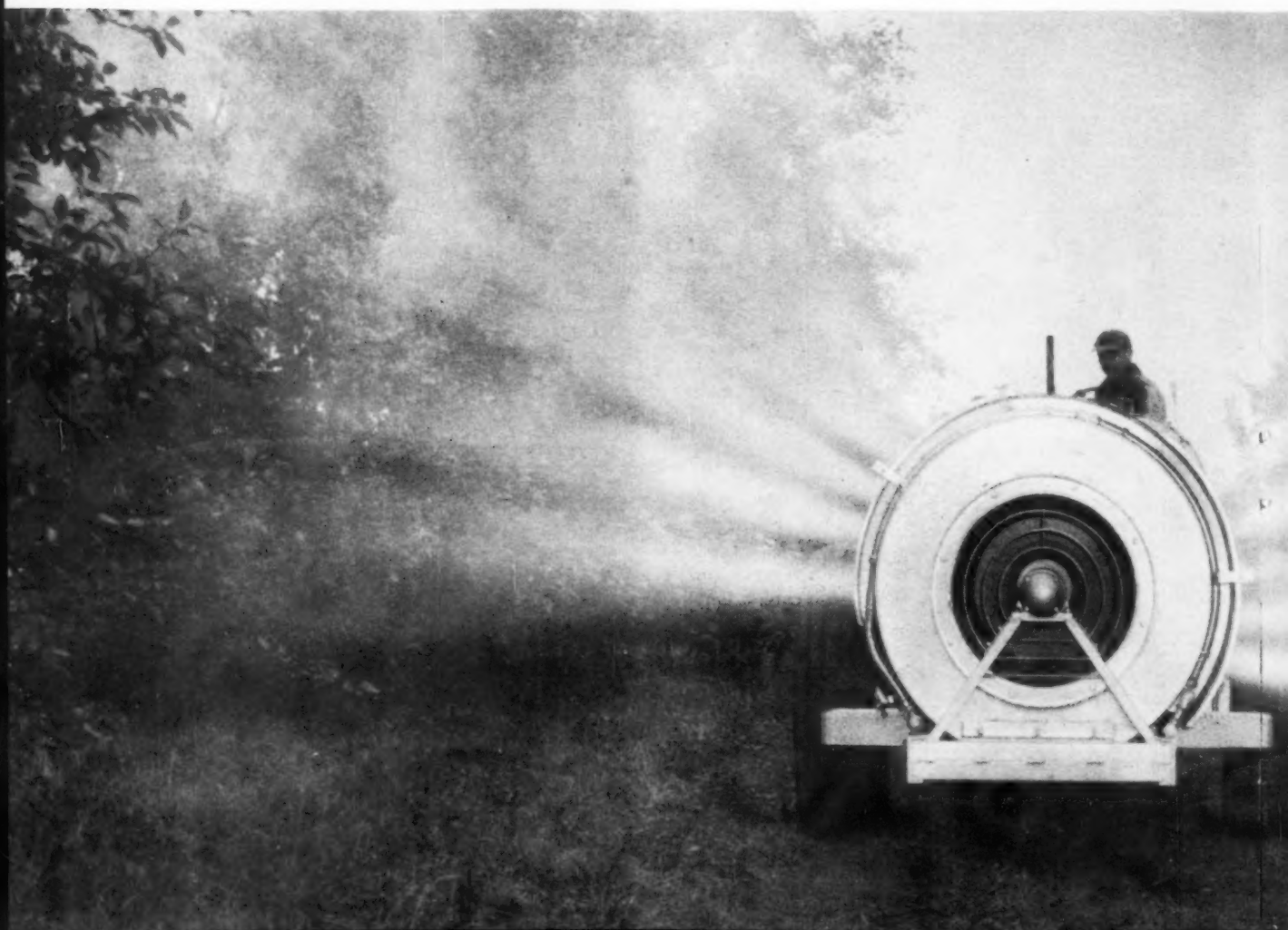
This is the way Ray Chamberlain sums up Myers Concentrate Sprayer performance in his Vita-Ful orchards. But he goes on to say that this performance is made up of better timing, better coverage and greater economy. "Effective, timely protection is essential in producing a prize-winning and profitable apple crop. We can cover our 45-acre orchard in approximately 15 hours with a dozen 300-gallon tank loads of spray mixture. This arrests any insect or disease attack before it can get started".

Chamberlain's spray schedule for the season requires about nine applications starting in mid-April and finishing about August 1. "It's at about mid-May, though, when the Myers

shows its true colors", he says. "It puts the spray into those normally hard-to-get areas at the inside and top third of the trees. This kind of penetration and coverage is absolutely vital to the development of unblemished, well-conditioned fruit".

The Myers Air Sprayer helps Ray Chamberlain realize a better profit on his 15,000-box apple yield by saving time, labor and material. He says, "Before switching to a Myers Air Sprayer we used a dilute rig. It took twice as long and used four times as much water but still didn't give us the kind of sure-fire protection the concentrate machine delivers".

A Myers Concentrate or a Semi-dilute Air Sprayer can help *you* produce better-quality, higher-profit yields. Write today for more information. Or better yet, contact your nearest Myers sprayer dealer today.



Apple Sweepstakes Air Sprayer

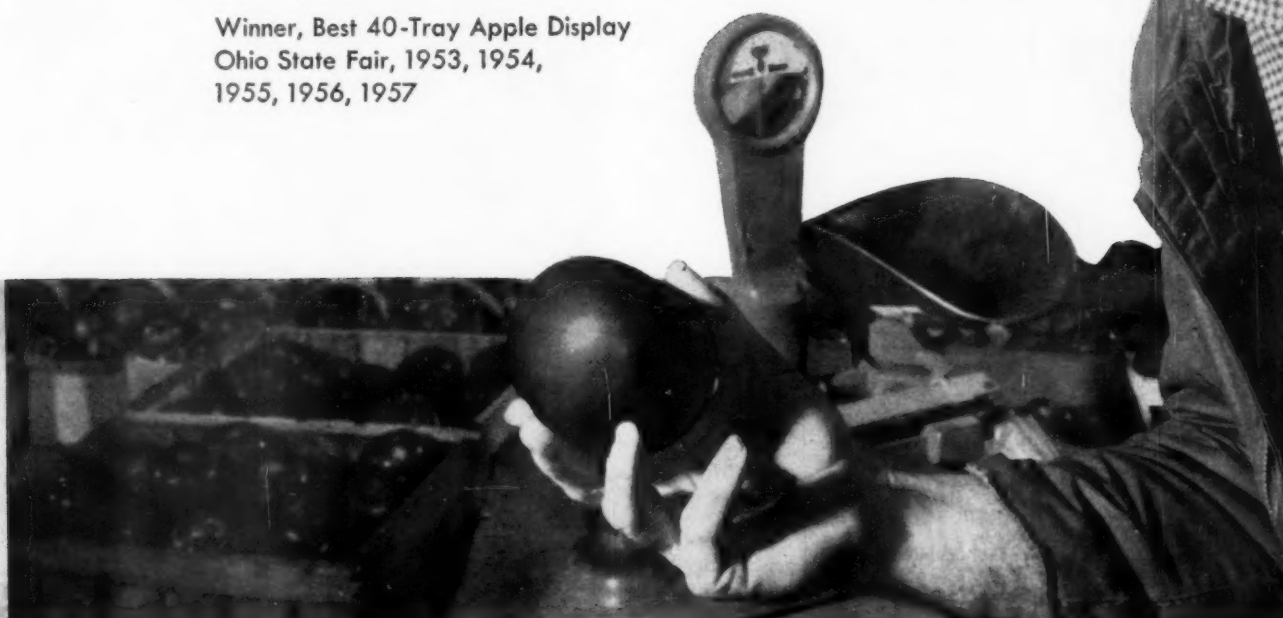
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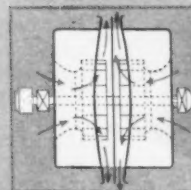
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Ray H. Chamberlain
Vita-Ful Orchards
Oberlin, Ohio

Winner, Best 40-Tray Apple Display
Ohio State Fair, 1953, 1954,
1955, 1956, 1957



This is the newest Myers Air Blast Orchard Sprayer. It has a 20 gpm pump. The blower delivers 45,000 cubic feet of air per minute at 90 MPH. The 300-gallon tank is protected against corrosion by a special Myers coating.



See how the air stream is delivered from fan blades directly through the tree. Air stream is redirected BEFORE IT REACHES MAXIMUM VELOCITY. Air is not blown into a corner where it can't get out.

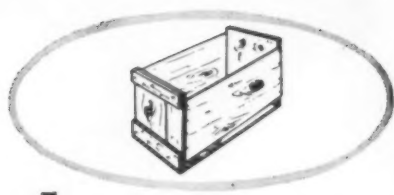


Myers big 26" "squirrel cage" fans and dual air inlets and special air outlet covers provide the widest possible range of spray patterns. Air can quickly be directed out either or both sides to combat extreme wind conditions.

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One quick, inexpensive dip in Cellu-san saves you money 5 ways:

- Wood won't become brittle and break so easily—stays "alive" and resilient.
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Write today for an 8-page brochure about Cellu-san—the most widely used wood preservative in the food industry.

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Dartmouth Incorporated.

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or P.O. Box 1422, Palo Alto, California.

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Apples

Dwarf Tree Spacing

This article gives the results of a co-operative research project on dwarf tree spacing in relation to wind and cropping. A. P. Preston, of East Malling Research Station, and Tom and Christopher Neame, operators of a large commercial dwarf apple planting in Kent County, England, conducted the experiment. The complete report is published in the *Journal of Horticultural Science* (Oct., 1956). This summary was prepared by the late C. L. Burkholder, of Purdue University, Lafayette, Ind., by courtesy of the editors of the journal.

The author visited the 150-acre block in which this work was being carried on in 1955 and reported that the site was similar to many in the Central West in that it was somewhat exposed and not protected by woods or conifer windbreaks.—Ed.

THE trees were seven years old when the experiment began in 1952. There were two 10-acre plots, the first was planted to four varieties on M II and spaced $25\frac{1}{2}$ by $25\frac{1}{2}$ feet (low density plot—67 trees to the acre). A second, adjacent plot was planted to the same varieties on the same rootstock, but with the addition of M IX filler trees to make the spacing $12\frac{3}{4}$ by $12\frac{3}{4}$ feet (high density plot—267 trees to the acre).

In order to measure the wind velocity accurately, two anemometers were placed in the center of the plot and at a height approximately level with the centers of the trees on M II.

"The increase in the velocity of the wind in the low density plot (trees $25\frac{1}{2}$ by $25\frac{1}{2}$ feet) varied from year to year from 21 to 37% during the blossom period and from 28 to 44% after bloom," according to Preston.

For the four-year period 1952 to 1955, there was an increase in yield per tree on the high density 10-acre plot of 69%. The filler trees on M IX further increased the difference in yield on the high density plot by approximately 150 bushels per acre. Girth measurements also brought out the fact that the trunk diameter of the trees on M II were actually 10% larger in the high density plot at the end of the eleventh growing season.

In summary, Preston states: "The evidence shows that the filler trees have not had a detrimental effect upon the development and cropping of the trees on M II; indeed, under the conditions of this trial, their presence seems to have been beneficial. Thus, under these exposed conditions, the

higher tree density per acre provided by the filler trees has both lessened wind velocity and increased the yield of the permanent trees, quite apart from the additional yield from the filler trees themselves."

Preston further points out that "the causes of different cropping of the two sets of trees on M II are undoubtedly complex. Firstly, the wind effect may have been a direct one affecting the setting of the blossoms due to lower temperatures in the low density plot. Secondly, the increased wind velocity has caused greater mechanical injury to the leaves, thus affected tree growth. Thirdly, the effect may have been indirect, through pollinating insects working more among the blossoms of trees in the high density plot."

The average annual rainfall of the area in which this work was conducted is approximately 30 inches per year. However, the rainfall is distributed very evenly over the entire 12 months and the rains do not come

DWARF FRUIT TREES

Dwarf apple and pear trees are discussed in USDA Leaflet No. 407, "Dwarf Fruit Trees: Selection and Care." Of special interest is an evaluation of the various Malling rootstocks, and a list of varieties which are best adapted to dwarf plantings. Send 5 cents to the Superintendent of Documents, Washington 25, D.C.

in the form of heavy thunder showers, so there is a minimum of runoff. Also, average daily temperatures are lower and humidity is higher during the growing season than in most apple-growing areas in the states.

Under our average growing conditions (without irrigation), 267 trees to the acre might actually result in such a shortage of moisture that tree growth and production per tree might conceivably be best in a "low density" planting. However, it is safe to say that all commercial apple growers in the states are looking for ways to increase yields per acre as well as reduce production costs per bushel. Trees on semi-dwarfing rootstocks, closer planting, and increased use of irrigation may be some of the possible answers.

Chemical Thinning

IT is now generally recognized that early thinning of apples with chemicals represents the cheapest and most reliable means available to a grower for improving fruit size in a heavy crop year and for reducing the tendency of many varieties to bear primarily in alternate years.

In eastern sections of the country

PREFERRED

for foliar application

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low biuret

(Less than 0.2%)

Completely water soluble, too!



New Agricultural Grade Grace Crystal Urea Fertilizer Compound

- ✓ Makes Possible Maximum Yields and Top Quality.
- ✓ Saves Time, Labor, Equipment.
- ✓ Safe! Especially Formulated for Foliar Application.

Because the nitrogen in new Grace Agricultural Grade Crystal Urea is *immediately* available to plants, the use of Grace Agricultural Grade Crystal Urea is the easy way to get maximum yields and top quality.

You can add Grace Agricultural Grade Crystal Urea to your regular insecticide or fungicide formulations and spray it at the same time you apply these other materials. By doing two jobs at once, you free men and equipment for other work. You save time, labor and equipment.

The low biuret content of Grace Agricultural Grade Crystal

Urea gives you concentrated nitrogen (46%) that's *completely safe* for foliar application.

It takes only a few days for you to see the response after spraying. The nitrogen goes to work almost at once. You'll see the improvement in foliage, color or growth, even when soil conditions are poor. For example, when there is excessive dryness, wetness, cold or leaching from heavy rains, response from foliar feeding with Grace Agricultural Grade Crystal Urea is good—and fast.

The crystals dissolve readily and completely, won't clog spray hoses, valves or nozzles. Solutions of Grace Agricultural Grade Crystal Urea are non-corrosive—won't harm rubber, metal or wood. And this superior urea is compatible with commonly used spray materials. Use Grace Agricultural Grade Crystal Urea with confidence. You'll profit.

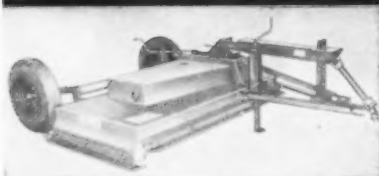
FOR SOIL APPLICATION use free-flowing Grace Urea Prills. Guaranteed 45% Nitrogen. Ideal for Top-Dressing or Side-Dressing of fruits and vegetables, as well as field crops.



Chemical Company A Division of W. R. Grace & Co.

MEMPHIS, TENNESSEE

"The 'Cat's Meow' for Orchard Mowing"



Mr. Albert J. Livezey of Barnesville, Ohio, says of his 80" Wood's Rotary Cutter, "We have no exact record of time saved but we feel that at least half is saved. While we have had only one season's experience, we feel that for brush disposal in the orchard it is one of the 'finds' of our day. We have never, I believe, found anything about which we are so enthusiastic. Its use is not limited to brush removal. It's the 'cat's meow' for all orchard mowing."

And as Mr. Livezey has found, Wood's Rotary Cutters are ideal for practically all mowing, mulching and shredding jobs anywhere on the farm.

25 MODELS — 42" to 9½' Cut

Besides the 80" offset model shown above, there is an offset adapter package for another pull-type 80" model to provide both center and offset hitch. Also 42" under-mounted for Farmall, Cub, Lo-Boy, Super A, 100, 130 and A-C G. 42" rear-mounted for Fast-Hitch Cub and Lo-Boy. 60", 61" and 80" rear-mounted for larger Fast-Hitch Farmalls (61" and 80" use 3-pt. adapter). 60" for A-C D-14, D-17, WD and WD-45, and all standard 3-point hitch tractors (Ford, Ferguson, Oliver Super 55, etc.). 60", 61", 80" and 114" draw-bar pull-types for any 2, 2-3 and 3-4 plow tractors, and Jeeps. All have free-swinging blades.

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WOOD BROTHERS MFG. COMPANY
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For TOPS IN CROPS Specify RAIN BIRD SPRINKLERS



A sprinkler without the Rain Bird name just isn't the same, for only Rain Birds have all the advantages that have made them world famous.

There's a Rain Bird designed for your specific irrigation needs. Every Rain Bird sprinkler advancement has been field-tested... and in the field, Rain Birds never have been bested!

For top yields... top quality... specify Rain Bird! See your dealer today, or write for helpful literature.

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Azusa, California

RAINY SPRINKLER SALES
Division L. R. Nelson Mfg. Co., Inc.
609 W. Lake St. Peoria, Illinois

where poor weather at blossomtime or spring frosts may seriously reduce the set, growers generally prefer naphthaleneacetic acid type material, which may be applied after bloom, to caustic blossom sprays when they believe thinning sprays are necessary.

Of the naphthaleneacetic acid type materials, naphthaleneacetamide (NA Amide) has generally become the most popular material, since it is apt to cause little or no injury to apple foliage and is often less apt to overthin than naphthaleneacetic acid (NAA) or its sodium salt. In fact, NA Amide is such a mild material that some consider its tendency to underthin some very heavy-setting varieties, such as Wealthy and Early McIntosh, as its major weakness. Under some conditions NA Amide has failed to thin Golden Delicious. Consequently, NAA still has a place in the present eastern apple thinning program.

Chemical thinning techniques still have a long way to go before the variability in the results obtained with naphthaleneacetic acid type compounds is eliminated. Probably all experimenters and growers using these materials for thinning over a period of several years have noted varying degrees of thinning on some varieties with essentially the same treatment in the same or different years. For example, data from one Wealthy block over a three-year period where the same concentration of NA Amide was applied at petal fall each year showed slight thinning in 1954, excellent thinning in 1955, and no thinning in 1956.

Other inconsistencies also exist. Many early apples, such as Oldenburg, Yellow Transparent, Red Astrachan, and Gravenstein, are much more apt to be thinned by NAA materials up to petal fall time than thereafter.

However, a few early apples, like Wealthy and Early McIntosh, plus most later varieties, may be satisfactorily thinned not only at petal fall but up to two and three weeks after petal fall.

With these latter varieties the degree of thinning obtained is not always consistent with the time of treatment. In some instances uniformly good thinning may be obtained when similar thinning sprays are applied at regular intervals from petal fall to two weeks thereafter. At other times a petal fall treatment may thin more than an application 10 days or two weeks thereafter. The next year, however, it is possible that an after-petal-fall spray may thin more than one at petal fall.

There does not appear to be any certain way of predicting which time of treatment will result in the most

advantageous results. Consequently, it is thought by some that for those varieties which may be thinned adequately over quite a long time after petal fall it may be wise to apply chemical thinners to a variety in this category on three or four different dates. By so doing one will probably be less apt to overthin or underthin as large a proportion of such a variety as might happen if all of the spray thinning of one variety were done on the same day.

Interest recently has developed concerning the advisability of adding wetting or penetrating agents to naphthaleneacetic acid type materials. Results of USDA workers show that the additive Tween 20, for example, will greatly increase the absorption of NAA. If the amount of NAA or NA Amide absorbed by the apple leaves is proportional to the degree of thinning obtained, it would be expected that one could use such additives with much lower concentrations of these thinning materials and get thinning results that are comparable with higher concentrations of NAA or NA Amide used without an additive.

Have such results been obtained? In work done on this subject in Massachusetts in 1956 and 1957 it appears that no such simple relationship always exists. We have obtained data which show that additives may or may not have any influence on the amount of thinning obtained from a given NAA or NA Amide concentration. Also, additives, including Tween 20, at 1 pint per 100 gallons of water, may markedly increase the amount of foliage injury obtained from both NAA and NA Amide.—*F. W. Southwick, U. of Massachusetts, Amherst.*

Baldwin Spot

IN searching for means to control or reduce Baldwin spot, Connecticut Agricultural Experiment Station, New Haven, has conducted studies on the effect of mineral balance as related to the occurrence of the disease.

Investigations indicate that calcium in relation to potassium and magnesium seems to have the greatest influence on spot incidence in Connecticut.

Partial success was obtained with calcium nitrate and calcium monophosphate, in dosages of 2 pounds each in 100 gallons, which were sprayed onto leaves, once in July and once in August.

However, results may not be universally good because of difference in individual trees and the variety.

Heavy nitrogen fertilization produces an excess of foliage over fruit, with a depletion of calcium in the fruit because of greater demands from the leaves. Heavy pruning pro-

duces the same result. Stripping off leaves in midseason would allow more calcium to enter the fruit and, thus, reduce spot.

Varieties that have a low incidence of spot almost universally have a favorable Mg/Ca balance. There is also a definite connection between the amount of calcium in the leaves and the amount in the fruit.

For varieties subject to spot in Connecticut, it is advisable to increase the amounts of P, Ca, and B—the logical solution being addition of calcium phosphate and boron for high N levels.

Work is being continued along some of the lines explained in Bulletin 601, *Studies of Mineral Balance as Related to Occurrence of Baldwin Spot in Connecticut*, by Philip Gorman and W. T. Mathis. A copy may be obtained from Connecticut Agricultural Experiment Station, New Haven, Conn.

Powdery Mildew

It was not so long ago that apple powdery mildew was known primarily in the western states and particularly in the Pajaro Valley of California. The reason is that in those rather dry areas it is usually not necessary to apply apple scab sprays. The sulfur in the apple scab spray held the mildew in check. Now with the new age of organic fungicides, mildew has spread in its influence and is frequently a problem in the East and Midwest. Such scab sprays of captan (Orthocide 50W and Stauffer Captan 50-W), glyodin, Phygon, thiram, and mercury do not affect the mildew.

Apple mildew overwinters in infected buds and will start to grow when the buds break in the spring. It usually reaches its peak of activity just before bloom and for two to three weeks thereafter, but will continue to spread on leaves and terminals until the terminal growth is completed.

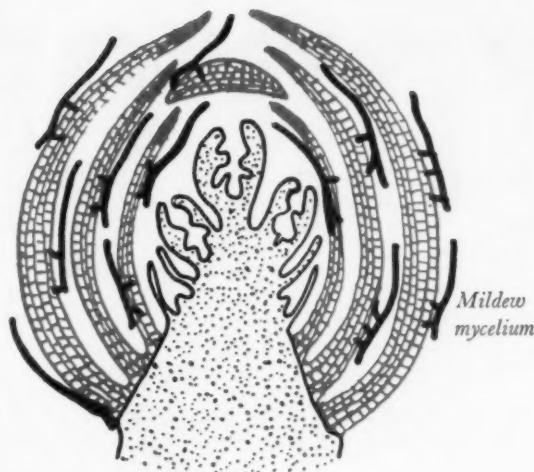
Fortunately, there is a new organic spray which will combat mildew. Karathane does the job but growers have been reluctant to use it in a full schedule because of the expense. Now, good news comes from Rohm & Haas Co.

Recent experiments have shown that the timing of Karathane applications is more important than the dosage employed. As a result, growers may now reduce the dosage to ½ pound per 100 gallons. However, Karathane should be added to every regular spray of the standard spray schedule from delayed dormant through terminal elongation at intervals of seven to 14 days. At no time should treatments be spaced more than 14 days apart.

APRIL, 1958



Mildewed terminal



Cross section of infected bud

Mildew mycelium

Go all the way with

KARATHANE

Don't gamble with sulfur in your mildew spray program even early in the season. You can get near perfect mildew control by adding only one-half pound of KARATHANE WD to each regular spray during the active mildew period (delayed dormant or pink through terminal elongation). By using KARATHANE, you get healthier foliage and a bigger crop of "perfect"-finish fruit. The proof of this conclusion is evident in these data from an Eastern Agricultural Experiment Station. The test was made on Rome Beauty apples using a captan schedule as the check.

Powdery Mildew Spray	% Fruit Scoring Perfect	% Reduction in Mildew Lesions
Captan/Karathane—½ lb.	60	96
Captan plus sulfur—3 lbs. to bloom; then Captan/Karathane—½ lb.	18	98
Captan—1½ lbs.	64	0

KARATHANE, in addition, helps prevent mite build up. At the recommended dosage of only one-half pound per 100 gallons, KARATHANE is your best buy for powdery mildew control and the production of superior fruit.

Ask for more information from your supplier or your Agricultural Experiment Station.

KARATHANE is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.



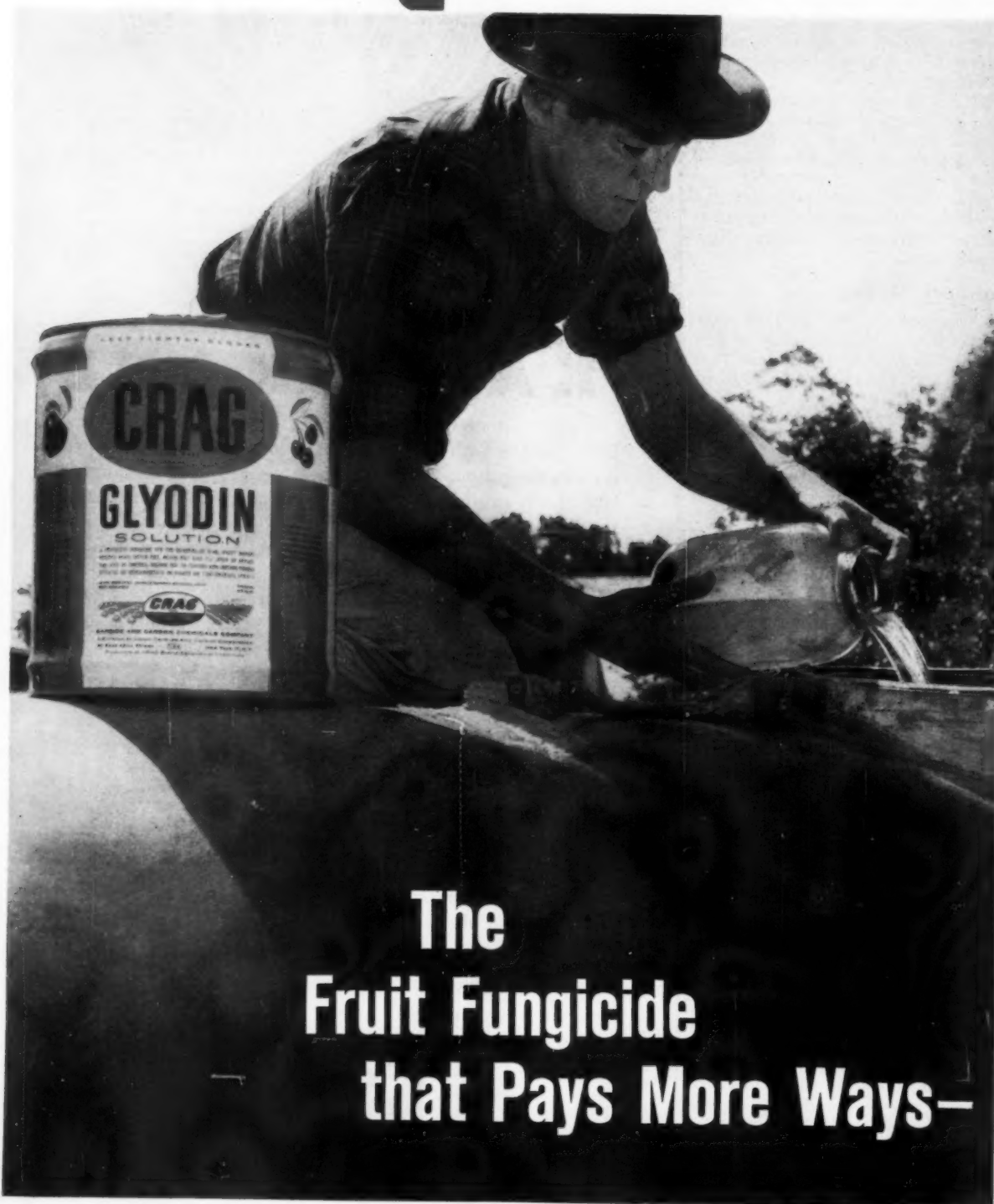
Chemicals for Agriculture

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TOP QUALITY



The image shows a man in a hat and shirt, kneeling outdoors, pouring liquid from a metal can into a large container. A large can of CRAG GLYODIN SOLUTION is visible on the left. The can has the following text: "LEAF FIGHTER SUGAR", "CRAG", "GLYODIN SOLUTION", "A POWERFUL FUNGICIDE FOR THE CONTROL OF THE MOST COMMON FRUIT FUNGUS DISEASES, SUCH AS APPLE SCAB, PEACH BLOTCH, AND CHERRY BURN. IT IS ALSO EFFECTIVE AGAINST THE APPLE AND PEACH TREE BORER AND THE CHERRY PEAR Borer. IT IS A COMPLETELY SAFE AND RELIABLE FUNGICIDE FOR THE CONTROL OF ALL THESE DISEASES.", "CRAG", "BARNES AND BARNES CHEMICAL COMPANY", "100 YEARS OF SERVICE TO THE FARMER", "1918-1948", "100 YEARS OF SERVICE TO THE FARMER".

The
Fruit Fungicide
that Pays More Ways—

AT LOW COST



GLYODIN saves you money TWO WAYS!

FIRST--

It costs less. You can figure that Glyodin costs only 75¢ per 100 gallons of early spray, and 56¢ per 100 gallons of cover spray on apples. Here's a typical example for a grower who uses 300 gallons of spray per acre, and sprays 10 times during the season (4 early sprays, 6 covers):

Total cost of another commonly-used fruit fungicide	\$25.20 per acre, entire season.
Total cost of Glyodin	19.08 per acre, entire season.
Total savings from Glyodin	\$ 6.12 per acre

If you have a hundred acres of apples, your total saving on the fungicide material alone is over \$600.00 . . . and you get top-quality scab and summer disease control.

SECOND--

In addition to economy, Glyodin gives you *exclusive, extra advantages*. It suppresses mites, may cut down on mite sprays. Glyodin is an excellent spreader-sticker that stays on even in wet weather. It helps improve the effectiveness of some insecticides, and combines well with sulfur for mildew control.

CRAG Glyodin is truly the scab spray that pays more ways. Use it in your early and cover sprays during 1958 . . . and let it pay you a real dollar bonus.

**CRAG AGRICULTURAL CHEMICALS ARE PRODUCTS OF
Union Carbide Chemicals Company**

Division of Union Carbide Corporation • 30 East 42nd Street • New York 17, N. Y.



—See Your CRAG Glyodin Supplier!

Glyodin is available in 5-gallon, 30-gallon, and 54-gallon drums.

"Crag" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

GUTHION[®] ALONE CONTROLS MOST MAJOR FRUIT PESTS

**GUTHION does the job of 3 or 4
different chemicals . . . greatly
simplifies your control program**

GUTHION puts an end to complicated fruit spray schedules . . . makes possible for the first time simplified fruit pest control. You no longer need three or four different chemicals, because GUTHION wettable powder does the job alone . . . effectively controls virtually all major fruit insect pests!

COMPARE THESE TWO APPLE INSECT CONTROL SCHEDULES

TYPICAL SCHEDULE WITH CONVENTIONAL INSECTICIDES			Simplified GUTHION Schedule
Application	Insects	Chemicals	
PETAL FALL	Codling Moth, Curculio, Leaf Roller, Sawfly, Leaf Miner, Red Bugs, Mites, Aphid	Parathion 15% Dieldrin 50%	GUTHION alone
FIRST COVER	Codling Moth, Curculio, Leaf Roller, Leaf Miner, Red Bugs, Mites	Parathion 15% Dieldrin 50%	GUTHION alone
SECOND COVER	Codling Moth, Leaf Roller, Curculio	DDT 50%, TDE 50%, Parathion 15%	GUTHION alone
THIRD COVER	Codling Moth, Mites, Aphid	DDT 50%, Aphicide, Miticide	GUTHION alone
FOURTH COVER	Apple Maggot, Codling Moth, Leaf Roller, Fruit Worm, Aphid	Lead Arsenate, DDT 50%, TDE 50%, Aphicide, Miticide	GUTHION alone
FIFTH COVER	Apple Maggot, Codling Moth, Mites, Curculio	Lead Arsenate, DDT 50%, Miticide, Parathion 15%	GUTHION alone
SIXTH & SEVENTH COVER	Codling Moth, Leaf Roller	DDT 50% TDE 50%	GUTHION alone

GUTHION keeps insects under control better between sprays, too, because of its prolonged residual action. GUTHION stays on the job . . . keeps working from one cover spray to the next. GUTHION wettable powder is recommended for the "all-season" control of fruit pests on apples, crab apples, pears, peaches, nectarines, apricots and quinces. Ask your Farm Supply Dealer!

GUTHION A PRODUCT OF **CHEMAGRO**
 "Chemicals for Agriculture—Exclusively!"

Pears

Blight Resistant Varieties

FIRE blight is one limiting factor in commercial production of pears in southeastern United States. Length of the rest period is another factor seriously limiting climatic adaptation of certain varieties.

Included in the variety testing program of Mississippi State College are a number of pear selections and the new fire-blight resistant varieties introduced by Dr. Brooks D. Drain, University of Tennessee. Grown and fruited at one or more locations in Mississippi, many of the varieties and



Ayres, a Tennessee blight-resistant introduction.

selections have shown no fire blight, while others have been killed.

The Ayres variety was ripe in late July, 1957, at State College. The bright red color and the sweet flavor of this variety make it an outstanding choice for an early pear.

Fruits of the Orient and Carrick varieties were ripe in mid-August. Orient has large, attractive fruits that easily become overripe on the tree. Carrick fruits are quite russet in color with a small core, crisp texture, few grit cells. They averaged about 6 ounces in weight.

The Morgan variety ripened before August 15. Fruits are especially large and attractive with good texture and flavor. A six-year-old tree produced 2 bushels, and many individual fruits weighed a pound, with a diameter of 3½ inches. Hoskins fruits were harvested after September 1 and had a very russet skin color.

Orient, Ayres, and Morgan are Tennessee fire-blight resistant varieties which are recommended for

AMERICAN FRUIT GROWER



22 minutes, 6 bolts, and she's ready to roll!

It never takes long to repair a Thermo King unit. Rigs roll in—we fix 'em right quick, or put in a fast replacement. And out they go, sometimes in minutes.

No need to disturb the cargo. No waiting for parts. No long replacement worries. You won't believe it, but we can change out a whole unit—from the outside—by just unscrewing 6 bolts!

Service is a big thing with Thermo King. It's the only outfit in the business that backs you up

with service all over the country. You can find a Factory Authorized Service station like ours along every truck route in the States and Canada. And besides that, a fleet of Thermo King station wagons with engineers will help you out of a rough spot in an emergency day or night.

Like I learned back at the factory school: Thermo King truck refrigeration units are the best in the world. A supply of factory parts and guys like me help keep them that way.




First Name in Truck & Trailer Refrigeration

44 South 12th Street, Minneapolis 3, Minnesota

British Commonwealth: Canadian Thermo Control Co., Ltd. Montreal, Quebec

How these **3**
GEIGY
CHEMICALS
 can help you get
MORE BOXES
 of
QUALITY FRUIT
 per acre



This year one phone call or visit to your Geigy dealer can help you get these three big benefits:

- effective control of mites.
- effective control of many insects attacking fruit crops.
- correction of iron or zinc deficiency in your soil.

CHLOROBENZILATE

controls most species of mites



Use Geigy Chlorobenzilate 25E (25% emulsifiable solution) or Geigy Chlorobenzilate 25W (25% wettable powder) to control Two-Spotted Mites, European Red Mites, Brown Clover Mites, and McDaniel Mites on apples and pears. Chlorobenzilate also controls Cherry Rust Mites on cherries. It is economical, has long residual action and will not affect bees under normal field conditions. Follow label directions.

METHOXYCHLOR

controls many insects attacking fruit



At the first sign of infestation use Geigy Methoxychlor "50" (50% wettable powder and dust base) to control the following tree fruit insects: **Apple:** apple maggots, codling moths, Japanese beetles, leafhoppers—**Pear:** codling moths, pear slugs—**Cherry:** cherry fruit flies, cherry fruitworms—**Apricot, Peach, Plum & Prune:** plum curculios—**Quince:** codling moths. Geigy Methoxychlor is safe, economical and has long residual action. Follow label directions.

SEQUESTRENE*

METAL CHELATES

for correction of iron or zinc deficiency in soil



Use Sequestrene 330 Fe Iron Chelate for correction of iron deficiency in apple, pear, peach, citrus and avocados growing in alkaline or slightly acid soils. Apply as a soil treatment or a foliage spray. Compatible with most commonly used insecticides, fungicides and fertilizers. Use Sequestrene Na₂Zn Zinc Chelate for correction of zinc deficiency in grapes, apples, cherries, plums and peaches. Follow label directions.

* SEQUESTRENE is the brand name for metal chelates sold by Geigy Agricultural Chemicals, Division of Geigy Chemical Corporation

ORIGINATORS OF **Geigy** DDT INSECTICIDES

GEIGY AGRICULTURAL CHEMICALS

Division of Geigy Chemical Corporation • Saw Mill River Road, Ardsley, N.Y.

general grower trials in Mississippi.

The Orient variety, named in 1946, has been widely tested and can be successfully grown in Mississippi.

Orient trees are vigorous and spreading in growth habit. In an orchard near Jackson, Miss., nine-year-old trees of Orient are 16 feet tall and 17 feet wide; Kieffer trees are 17 feet tall and 12 feet wide; and Waite trees, 18 feet tall and 8 feet wide. Trunk circumferences at 12 inches above the ground are: Orient, 26 inches; Kieffer, 17 inches; Waite, 18 inches.

Tree growth habit of Ayres and Morgan varieties is more upright than Orient but heavy fruit crops tend to spread the limbs.

Chilling Requirements. Pear varieties have specific chilling requirements to break their rest period during the winter before they will grow normally the following spring. In central and south Mississippi and similar areas there sometimes is not enough cold weather to meet the chilling requirements.

Certain varieties have a very short rest period (less than 700 hours of chilling at 45° F. or lower before February 15), and therefore would be better adapted for the climate in south Mississippi and similar climatic areas. Some of these are Baldwin, Carrick (Tennessee), Dabney (Tennessee), Garber, Kieffer, Orient, Pineapple.

Varieties with intermediate chilling requirements may be expected to have prolonged dormancy some years when they are planted in areas approaching the subtropical. Ayres and Mooers (Tennessee) are intermediate.

Varieties having a high chilling requirement will be expected to be generally unadapted in the Gulf Coast area of Mississippi and similar climatic areas. Some of these varieties are Beierschmitt, Hoskins (Tennessee), Maxine, Morgan, Sure Crop, Tyson and Waite (USDA).—J.P. Overcash, Mississippi State College.



Cluster of 26 pears on Tennessee fire-blight resistant seedling at State College, Miss.

AMERICAN FRUIT GROWER



There's **NO OFF-SEASON** for the International® 350 Utility!

UTILITY is the name for it! A glance at these pictures shows the quick, easy adaptability of the International 350 Utility tractor . . . the wide range of work you'll do in orchard and grove—right around the calendar. Then, look at the *extra* values you get with IH design:

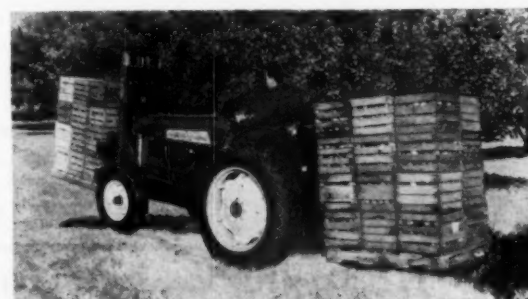
You get up to 1,000 pounds greater built-in weight than common to tractors of this type. That means you get greater *traction* to pull heavy offsets and sprayers. It means you get greater strength and stamina—ample for heavy loads with front or rear-mounted fork lifts, or combination of both. You get a low silhouette to work under low hanging branches.

You get greatest economy by using the fuel that costs you least. Choose the International 350 Utility from 3 models—gasoline, diesel, or LP gas engine.

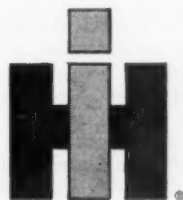
Call your IH Dealer—he'll gladly demonstrate! See the many ways you can save labor and speed up work with an International 350 Utility tractor. Phone *today*!



You get 10 speeds forward with optional Torque Amplifier drive, from a low-low of 1.8 to 16.7 mph—always the *right* speed for most effective spraying!



Greater built-in strength lets you handle big loads of crated fruit, even on soft footing, using fork lifts on both front and rear.



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**INTERNATIONAL
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International Harvester Products pay for themselves in use—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois.

KILL FUNGI

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PHYGON-XL



You get cleaner fruit, better yield with this low-cost killer. Phygion®-XL, the orchard fungicide, can sizably increase this year's peach profits at very little cost to you. This easy-to-use fungus killer gives excellent control of bitter rot, California blight, peach leaf curl, brown rot and blossom blight and many other diseases.

Remember, Phygion-XL is the cheapest, most effective fungicide available, not only for peaches but for apples as well, for it controls apple scab and bitter rot. Harmless to pollen and bees, does not affect odor or flavor of fruit.

Order Phygion-XL from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.



United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

• producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygion, Aramite, Synklor, MH, Alanap, Duraset.

Grapes

More Sugar

TWO grape growers in Berrien County, Michigan, have vineyards side by side. Both do a good job of spraying, cultivating, and other cultural operations. They follow a good fertilizer program and are reasonably good pruners.

Yet, one vineyard consistently produces 4 to 5 tons of grapes per acre. The grapes ripen evenly and are filled with "sugar"—these are the grapes that bring top prices at the juice plant. The other vineyard seldom produces more than 2 to 2½ tons per acre, and when it does, the grapes never get quite as ripe as they should. These are the low "sugar" grapes that bring a low price at the juice plant.

The only difference that can be seen between the two vineyards is in the trellising. In the high producing vineyard, the trellises are well built, Kniffin type, with the wires high and widely spaced. The wires are tight and there are no missing or broken posts.

WISCONSIN GRAPES

The University of Wisconsin Extension Service, at Madison, has available Circular 539, "Growing Grapes in Wisconsin," obtainable upon request. It covers briefly varieties, planting, fertilizers, pests, training, and pruning, and includes in addition a brief discussion of site, soil, and soil preparation. The material was prepared by George C. Klingbell, in co-operation with Earl Wade and Don Dever.

In the other vineyard, the top wire is only 4 feet above the ground and the bottom wire barely a hand-span's distance below. There are some missing posts, and in late summer, loose wires hang low from the weight of the small crop.

The real difference between these two vineyards is in the amount of leaf surface. Grapes need a large expanse of leaf area exposed to the sunlight in order to produce large amounts of fruits filled with "sugar."

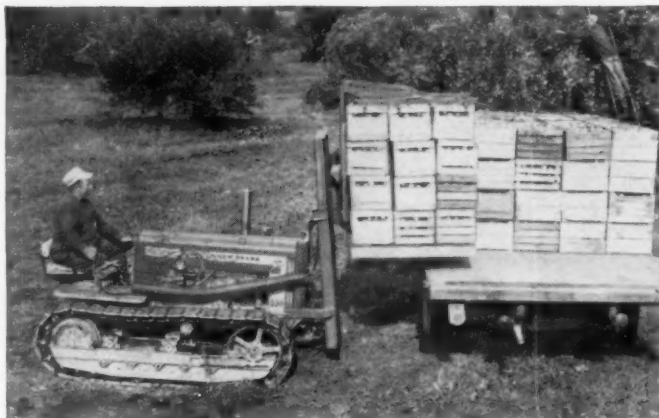
Professors James E. Webster and Frank Cross, of Oklahoma State University, found that at least 10 leaves are needed for each cluster of Concord grapes for proper ripening to occur.

M. H. Loomis and J. M. Lutz, working in Mississippi, found that the best color and flavor were present when a grape vine had almost 54 square feet of leaf surface. When the leaf surface dropped below 20 square foot per vine, color and flavor were not satisfactory. A large area of leaf surface is particularly important in the eastern United States where the amount of light intensity and total

Money-Makers for Fruit Growers

JOHN DEERE 420 CRAWLER

Look to the right, and you'll see the 3-4 plow "420" Crawler loading apples—one of many jobs which this rugged, dependable, low-cost money-maker handles fast, easily, and economically. Low-built, stable on hill-sides, short-turning and easy-handling—it's adaptable for year-around use with drawn, integral, 3-point, and PTO equipment of many kinds. An all-weather, "any-footing" worker, it's the standout track-type tractor for orchard, grove, vineyard, and field work.



JOHN DEERE 420 UTILITY

This low-built, sure-footed, widely useful 2-3 plow tractor gives you big work capacity—yet saves money all the way, with low first cost and exceptional economy on fuel and upkeep. It handles 3-bottom plows under most conditions; matches the work output of larger tractors on jobs such as mowing and spraying. A 3-point hitch with Load-and-Depth Control, and "live" Touch-o-matic hydraulic system are provided. Power steering, power-adjusted rear wheels, and 5-speed transmission are among optional features.



JOHN DEERE 620 ORCHARD

Powered by the engine which set the fuel economy record (gasoline) in official tests, and completely shielded to protect trees and fruit, this compact 4-plow "620" Tractor is tailor-made for big daily work output at low costs, in groves and orchards. It maneuvers easily, with short wheel-base and tight turning radius. Weight is distributed for maximum traction on sandy soils and steep slopes. It provides 6-speed transmission, live hydraulic Powr-Trol, and many other features.



These tractors are favorites for dependable performance, long life, low upkeep costs, fuel economy, and adaptability for all kinds of grove, orchard, and vineyard work. All models are available with gasoline, LP-Gas, or all-fuel engines. Ask your dealer to demonstrate. Remember—the John Deere Credit Plan makes it easy to pay for one of these tractors as it earns for you.



JOHN DEERE

"WHEREVER CROPS GROW, THERE'S A GROWING DEMAND FOR JOHN DEERE FARM EQUIPMENT"

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JOHN DEERE
CREDIT PLAN

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- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> 420 Crawler | <input type="checkbox"/> 420 Utility |
| <input type="checkbox"/> 620 Grove | <input type="checkbox"/> LP-Gas |

Name _____ ☐ Student

R.R. _____ Box _____

Town _____

State _____



STOP

THE LEAF-SPOT PLAGUE

Actispray*

SOLUBLE ANTIBIOTIC TABLETS



effective
leaf-spot
eradicant
before
and after harvest

Actispray, the new antibiotic fungicide, effectively controls leaf-spot disease in both sweet and sour cherries. Since it may be applied up to 4 days before harvest, its protective action lasts through the harvesting period.

ACTISPRAY—

Acts rapidly Actispray kills the established fungus within one hour after spraying.

Kills the established leaf-spot infection By actual test Actispray is one of the most effective leaf-spot eradicator. This eradicator action provides for long term protection.

Keeps trees healthy Once Actispray removes the burden of the leaf-spot fungus, the tree

becomes more vigorous and should be able to form more fruit of higher quality.

Easy to use Simply drop the easily dissolved tablets into the spray tank with agitator running, then spray.

Economical Just one tablet added to 100 gallons of water makes enough 1 ppm solution to treat 25 trees. Every drop of the solution is active.

Does not stain . . . leaves no visible residue Actispray is also recommended for non-bearing trees, nursery stock, and transplanted trees one to two years old.

Actispray antibiotic tablets are supplied in convenient glass tubes, 24 tablets to a package.

*TRADEMARK, REG. U.S. PAT. OFF.

Upjohn

Actispray is a product of

THE UPJOHN COMPANY, CHEMICAL SALES DIVISION, KALAMAZOO, MICHIGAN

sunlight is less than in the irrigated sections of the West.

The trellis is the framework supporting the vine, including its trunk, arms, shoots, clusters, and leaves. A good trellis is one which allows a large leaf area of each vine to be exposed to sunlight, but it must not be too costly or hard to build. It also must fit in with the system of training and permit ease of spraying, cultivating, and harvesting.

The most widely-used trellis for American-type grapes is the 2-wire Kniffin type. It should be built well and with good materials.

Chemically-treated posts are much more durable than untreated posts. Use 8-foot posts set 2 feet in the



High trellis has well-spaced wires: top wire is 5½ feet above ground, bottom wire is 2½ feet lower. Vineyard produced 5 to 6 tons per acre high sugar content grapes past 3 years.



Low trellis with wires only 4 inches apart. Production of this vineyard is about 2 tons per acre, and sugar content of grapes is low.

ground. The top wire can then be 5 to 6 feet above the ground—the bottom wire 2½ to 3 feet lower—in Kniffin or Umbrella systems. Use No. 9 or 10 galvanized wire. It is this large area between the wires that gives the shoots room to grow and expand and allows for maximum exposure of the leaves to the sun. On this type of trellis, the vine will produce large amounts of "sugar-filled" grapes. — Paul Larsen, Michigan State University.

AMERICAN FRUIT GROWER



Eric B. Beckeman, Pennsylvania-Registered Professional Engineer and owner of Beckeman Engineering Sales.

"ENGINEERED IRRIGATION STARTS RIGHT HERE"

"Applying an inch of water to a single acre requires 27,154 gallons. And, as you know, the total amount of water needed varies with the kind of crop. The average is two inches or approximately 54,000 gallons per acre every ten days from seeding through harvest.

"This imposes the most exacting demand upon the pumping equipment for dependable, trouble-free service. For example, the pump in this system operated six hours, or more, each day for 65 days during a drought. Its delivery rate is 960 gallons per minute at 120 pounds pressure. The application in a tree nursery is unusual, but it definitely shows the pump's importance.

"The proper water supply, we consider the most important factor in engineering an irrigation sys-

tem. We regularly specify Gorman-Rupp Pumps because of: (1) assurance of dependable and efficient performance, (2) design advantages for the pump user, (3) adequate selection of sizes and driving power for every size of irrigation system."

SYSTEM SUMMARY

(With reference to the pump shown above.)

Crop and acreage: Nursery Stock, 75 acres.

Gorman-Rupp Irrigation Pump: Model 65M-IND56A.

Other equipment: 2,000 feet of main-line 6" aluminum pipe; 4,000 feet of 4" lateral lines, in a duplicate system; 24 sprinklers of 40 gpm in each system. Sprinkler spacing is 80 feet. Pipe spacing, 100 feet.

Date installed: June 15, 1957.

Other details on request.

THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio

Improve size and quality of fruit
...lower your costs
by chemical thinning with
ACP AMID-THIN

Thoroughly tested over the past 5 years, proved over the past 3 years on commercial orchards in 20 leading apple-growing states, ACP Amid-Thin has given consistently good thinning with no injury to foliage or fruit. With hand-thinning expensive and time-consuming, here's why

**YOU SHOULD USE
AMID-THIN**

1. Has been thoroughly tested—and proved effective
2. Unlike other thinning agents, it can safely be used early—no injury to foliage or fruit
3. Such early application attains a leaf-fruit ratio more favorable to fruit and bud formation the following year
4. Its wide range of safety at concentrations needed for thinning reduces likelihood of overthinning
5. Lowers production costs by eliminating need for expensive hand-thinning

Why not put ACP AMID-THIN to work for you

AMERICAN CHEMICAL PAINT CO.

Agricultural Chemicals Division

St. Joseph, Mo. • AMBLER, Pa. • Niles, Calif.

Originators of 2,4-D and 2,4,5-T Weed Killers



**THE
QUESTION BOX**

Don't be perplexed! Send us your questions—no matter how big or small. A three-cent stamp will bring you an early reply. Address: The Question Box, AMERICAN FRUIT GROWER, Willoughby, Ohio.

WHERE CAN I BUY

Marion blackberry plants?—Oregon.

Growers in Oregon having at least 2000 plants for sale in 1958 include: T. M. Van Dyke, Rt. 1, St. Paul; Les Pearmine, Jr., Rt. 1, Gervais; Fred Sahli, Rt. 1, Aumsville; Edmund Van Dyke, Rt. 2, Colton; W. O. Wiley, Rt. 1, Dayton; Harold Hopkins, Hubbard; H. C. Compton, Rt. 1, Box 57, Boring; as well as the following, all located in Woodburn: Leonard Larson, Rt. 2; Leslie T. Hughes, Rt. 2; R. A. Lohse, 2495 Molalla Rd.; Edward Dreseher, Rt. 2; and James Ballweber, Rt. 2, Box 90.

Higgins grape plants?—Tennessee.

From Owens Vineyard, Gay, Ga., and Oxford Vineyard, Concord, Ga.

Elliott pecan trees?—North Carolina.

From Simpson Nursery, Monticello, Fla.

BREAKING BALES

Do you have any suggestions for a piece of equipment for breaking up bales of hay or straw for mulching orchards?—Ontario.

Rotary-blade brush cutters and mowers are used extensively in this country. Some manufacturers include Wood Bros. Mfg. Co., Oregon, Ill.; E. L. Caldwell & Sons, Corpus Christi, Tex.; Brillion Iron Works, Inc., Brillion, Wis.; Howard C. Green, Portland, N. Y.; and Lilliston Implement Co., Albany, Ga.

MULCHING BLACK RASPBERRIES

I plan to mulch my black raspberry bushes with sheep manure and wheat straw. Will I need additional nitrogen and when should this mulch be applied?—Ohio.

Apply the sheep manure and wheat straw mulch in the fall. It should furnish approximately 14 pounds of actual nitrogen per ton. The general recommendations for applying nitrogen to raspberry plantings is 50 to 100 pounds per acre, so adjust the nitrogen application by supplementing the manure with any good nitrogen carrier.

LADY APPLE

I have two young Lady or Christmas apple trees and would like to get a description of a Lady apple and to know where it originated.—Wisconsin.

References in horticultural records to the Lady apple go back to about 1768 when the apple was grown in France under the name Api. It is a very small apple, beautiful yellow, with a deep red blush. Its flesh is white, rather tender, and juicy, with a flavor reminiscent of Christmas candy. It is a Christmas sweet. A store in Chicago featured them Christmas week last year at 49 cents a pound.

DIVIDING CROWNS

How should I go about dividing my Red Rich strawberry plants?—Ohio

This is not a common procedure but can be done. It's usually best first to cut the plant in half for a better view of the crowns and their roots. Each individual crown is cut or broken off so that a number of roots remain attached to the crown; the more roots left the better, though if care is taken in handling and planting, plants with 5 to 10 roots may be satisfactory. Only crowns of good size, diameter of at least a half inch long, should be used. Best results will be obtained with young, vigorous crowns, and the division should be accomplished in the spring.

AMERICAN FRUIT GROWER

fmc

Automatic Apple Bagger

**Gently,
accurately
weighs
and fills
over 450 bags
per hour!**

Here is the missing link in your apple sales preparation. With one operator, you will be able to save precious hours and dollars every day. Completely automatic in operation, the bagger is designed to serve you with the fastest, easiest, and most GENTLE operation available. The springless balance scale assures you accuracy equal to hand weighing and the single scale indicator serving both baggers is large and easy to read.

The FMC Automatic Bagger is ideal for the inexperienced operator. All unnecessary motions and movements by the operator have been eliminated. When the correct weight has been reached, the operation automatically stops and transfers to the next bagger. For speedy operation, one side of the unit is carefully filling and accurately weighing one bag while the operator is changing bags on the opposite unit. Write for detailed literature today!

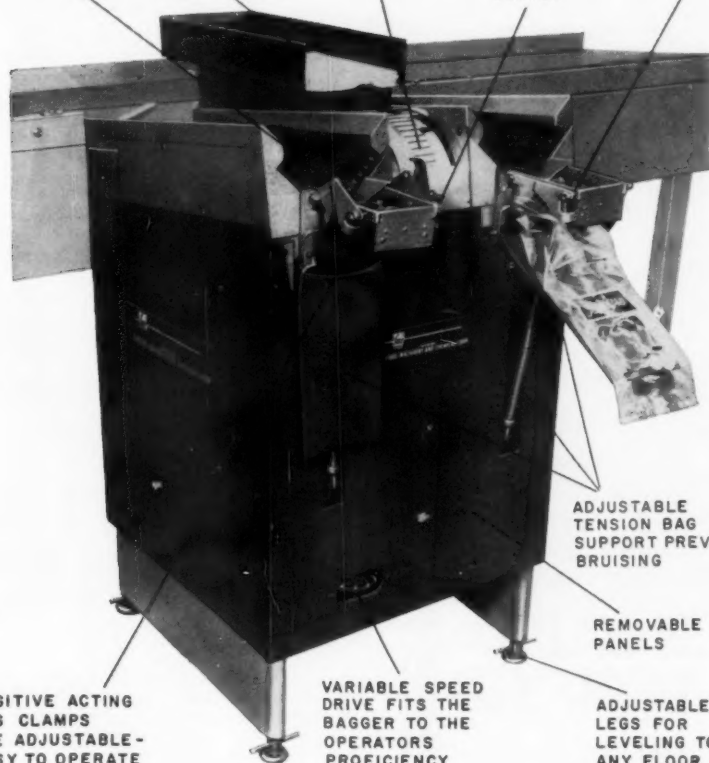
PATENTED "V" LANE
TRANSFER BELTS
PREVENT "BRIDGING"

CONVENIENT
BAG HOLDER

EASY TO
READ SCALE
SERVES BOTH
BAGGERS

CENTRALLY
LOCATED
ON - OFF
SWITCH

BAG HOLDER
IS SMALL -
COMPACT -
"CLOG-PROOF"



POSITIVE ACTING
BAG CLAMPS
ARE ADJUSTABLE -
EASY TO OPERATE

VARIABLE SPEED
DRIVE FITS THE
BAGGER TO THE
OPERATORS
PROFICIENCY

ADJUSTABLE
TENSION BAG
SUPPORT PREVENTS
BRUISING

REMOVABLE
PANELS

ADJUSTABLE
LEGS FOR
LEVELING TO
ANY FLOOR



Designed for speed—the FMC Automatic Bagger and companion bagging table form a combination unrivaled for speed, ease of operation, and accurate weight. Note the padded receptacles for unsealed bags on the bagging table that prevent bags from spilling before the seal is attached. The new bagger is designed to receive apples from a return-flow belt table thus assuring a constant flow of fruit for peak efficiency.

Putting Ideas to Work



**FOOD MACHINERY AND CHEMICAL
CORPORATION**

Florida Division

General Sales Office—LAKELAND, FLORIDA
Plants: LAKELAND, FLORIDA—WOODSTOCK, VIRGINIA

**FLORIDA DIVISION, FOOD MACHINERY AND CHEMICAL CORP.
P. O. BOX 1718, LAKELAND, FLORIDA**

Gentlemen: Please send me details on FMC Apple Baggers.

Name

Company

Address RFD No.

City State



Rainers for BIG YIELDS TOP QUALITY

Buckner's dependable rotation gives you even penetration of water throughout your entire field. You get BIG yields and TOP quality with a minimum of water.

Buckner's exclusive GDG bearing* gives years of durable long-lasting service. Teflon washers protect sprinklers from wear due to silt or sand. Buy the best — Genuine Buckner Sprinklers.

*Pat Pending



MANUFACTURING CO., INC.
P. O. Box 232 • Fresno (8), California

FERTI- LIQUID

Trade Mark Reg.

Patent Pending

The All-Purpose Liquid Fertilizer
Complete with Penetrating Agent —
Trace Elements — Growth Stimulant

New, Advanced
10-20-10 Formula —
40% Nutrients

Produces TOP QUALITY fruit
—BIGGER, BETTER-TASTING

- Gets it to market sooner
- BIGGER YIELD per tree
- Non-corrosive — use safely with any type spray (tractor, jet, boom or aerial) . . . ties in with insecticidal, fungicidal, herbicidal spray programs for low cost application
- No mixing, dust or odor!

\$2.50 per gal. in 55-gal. drums
delivered

Write for complete details

CLOVER CHEMICAL CO.

P.O. Box 10865 • Pittsburgh 36, Pa.



By HENRY BAILEY STEVENS

Why the Price? OUT at Orchard Hill Fruit Farm in Richmond, Ohio, the Davis family got very tired of trying to explain to customers all the reasons that are bound up in the price of apples.

"So," writes Helen Davis, "we wrote a poem and tacked it on the wall in the store." After a few folks read it and smiled an acknowledgment, the Davises knew there was a better understanding. But let the poem speak for itself:

Why Are Apples High? Here's Why

For each apple that we sell
Here's the work we have to tell:
In the winter pruning's done,
We assure you it's no fun!
And in spring we spread around
High-priced nitrate on the ground,
Then it's time to spray and spray
Until each apple's plucked away.
Grading then it's time to do,
Stacking boxes when we're through.
Paying all the sundry bills
Fills a guy with aches and ills,
And to mention just a few,
Here's a list we'll name for you.

We buy boxes, sacks and crates,
Bottles and lime aggregates,
Tractors, trucks and apple graders,
Ladders, bag, refrigerators,
Cost of maintenance and repair,
Electric bills that curl your hair,
Gas and oil and advertising,
Plus the cost of merchandising,
Insurance, dues and cider fees,
Plus the cost of keeping bees,
And when all of that is through,
We have to pay the picking crew,
Not to mention fertilizers,
Spray material and atomizers.
And to that the taxes due,
And what is left? Now I ask *YOU!*

The moral of course is: When anything gets your goat, write a poem about it. You'll be surprised at how trouble fades away after that.

Dew Dun It? THE mystery of large apples in an extremely dry season, commented on in our December issue, has called forth two more possible solutions.

William H. Wolff, of Springfield, Pa., old comrade at University of New Hampshire, suggests that the new spray materials such as captan and malathion, now being used instead of lime sulfur and the arsenates, may have helped by bringing the foliage through the season in perfect

condition. "We have better foliage now and no cracking of Stayman which used to be so serious," he says.

The other suggestion is that conditions this past year were favorable for heavy dew on many nights. Tests in Ohio have shown that accumulation of dew can total as much as 10 inches of water a year and in some years may furnish up to 20% of the total water supply for crops in humid areas of the midwest. Maybe spray and dew together did it. They're both liquids.

Time for Humor ONE of the things we have been asking for in this column is a little humor. Thus far two jesters have shown up: Mrs. Frank Barrett, of Rexford, N. Y., and D. K. Marks, of York, Pa. The former overheard at a roadside stand, a lady asking for windfalls. "I thought after that hard wind the other day I could get some."

"Madam," replied the saleslady, "when we had that wind, we held our breath and kept our fingers crossed hoping there wouldn't be any and there wasn't."

Philosopher Marks, possibly influenced by our masthead sketch of Isaac Newton, recalls that years ago a farmer used to go out under an apple tree in summer after dinner to take a nap. One day an apple dropped on his head. He awoke, looked around and up in the tree, and said, "It's high time to pick those apples."

Earth-Prints

By Ila R. Monday (Cincinnati, Ohio)

I've seen a footprint reaching shallow-wide,
It gently seemed to rest in long, long grass;
And one that softly bent a trembling rose,
So petals were unbruised by its sweet pass.

But here and there I've seen a crueler mark;
Torn, trampled branches, flower-stalks
slashed so rude
The blooms lay scattered, fading in the dusk . . .
Another time . . . perhaps another mood?

Unseen, unheard at times this printer goes,
No one can know him, or can guess his trend
Of thought, of method, except Him above
Who made this mighty mystery—of Wind!

Exile

By Edith Horton

Newfield, N.Y.

The city street beneath my feet,
With colors bright on left and right,
Is foreign to a place I knew,
Whose orchards lay upon a hill the sunlit way.

Then at a stall my glances fall:
Red apples stem in row on row
And touching them, I turn to go
With quickened pace, leaving this alien place.

Address your "Windfalls" contributions to Henry Bailey Stevens, AMERICAN FRUIT GROWER, Willoughby, Ohio.

AMERICAN FRUIT GROWER

The new insecticides require safe handling



Unlike many phosphates, malathion does not require use of respirator or special protective clothing.

DURING THE last ten years, many common insects have become harder to kill...in some cases resistant to standard insecticides. To combat these tough strains, new and more powerful insecticides have been developed. Without these chemicals, crop losses would have been enormous.

Many of these insecticides have greater toxicity for man and animals as well as for insects. This is particularly true of the phosphates, with one important exception... malathion. This versatile phosphate kills a wide range of insects attacking fruits and vegetables, and offers growers safety in use.

When handling most phosphates, respirators and protective clothing are a must. Malathion eliminates the need for both, yet is effective against a total of 105 different insects, including strains resistant to the chlorinated insecticides.

Recent government acceptance of malathion for application directly on livestock, where safety is so important, dramatically confirms this safety fea-

ture. The U.S. Public Health Service reports, "...the toxicities of malathion (oral and through the skin) are less than those of DDT." And the USDA calls it, "...one of the safest insecticides to handle."

All insecticides should be handled safely... malathion makes it easy.

Avoid Residue Problems

On many crops malathion can be used up to 72 hours from harvest... on most others, up to 7 days without danger of exceeding tolerances estab-

lished by the Miller Law.

Safety to Crops

Many states *specify* malathion in their insect control recommendations. It gives growers all the advantages of a phosphate, yet offers a wide margin of safety to fruit and foliage of sensitive crops.

For a free, Grower's Handbook listing malathion's uses, rates, timing, etc. write: American Cyanamid Company, Insecticide Department AF3, New York 20, N. Y.

WHEN YOU USE ANY INSECTICIDE...

1. Read labels, product literature carefully. Mix and apply *only* as directed.
2. When required, use respirator and protective clothing.
3. Make sure all persons handling insecticides wash thoroughly, particularly before eating.
4. Store insecticides in a safe place... out of the reach of children and pets. Destroy empty containers.
5. Know poisoning symptoms and antidotes for the insecticide you are using. If symptoms occur, call doctor immediately.

A service advertisement prepared by the manufacturers of malathion insecticide

This Respirator Protects Against 8 Toxic Sprays

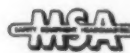


THE M-S-A FARM SPRAY RESPIRATOR

Here's the one Respirator that makes outdoor spray programs safer. New type filters keep users on the safe side of toxic sprays. Replaceable with in-use M-S-A Farm Spray Respirators. Accepted by U. S. Government Interdepartmental Committee on Pest Control. Write for details.

M-S-A GMC-1 INDUSTRIAL GAS MASK—For heavier mixing concentrations of all the above organic insecticides. "All-Vision" facepiece gives full facial protection—maximum vision.

DEALERS WANTED—Current customers are your best prospects. Cartridge and filter replacements mean repeat business. Write for details.



MINE SAFETY APPLIANCES CO.
201 North Braddock Avenue
Pittsburgh 8, Pa.

FOR IRRIGATING ORCHARDS AND GROVES

Insist on HALE

Irrigation Pumping Units FOR MORE WORK AT LOWER COST

You may find the HALE type PIR (trailer or skid mounted) just what you have been looking for—pumps 500 GPM at 100 PSI; 700 at 75 PSI. Other units range from the CIRV (1560 GPM at 75 PSI) to the FZ or new Hale "TORRENT," suitable for low cost irrigation of small acreage.

Ask about the New HALE "Torrent" Self-Priming Portables

Quality-built, quick-starting, low-cost
—the "Pump of a Thousand Uses."

Ideal for "on-the-spot" filling of tanks with water, liquid fertilizer—also for small irrigation jobs, stand-by water system and emergency fire fighting. Pumps over 7000 gallons per hour!

● HALE Irrigation Pumping Units are sold thru Distributors who are well qualified to Engineer a system best suited to YOUR needs.

Write to Dept. AFG today for full information on the complete line of Hale Irrigation Pumping Units INCLUDING the new Hale "Torrent" Bulletin No. 363. Prompt Reply Guaranteed!

Name _____
Address _____
Water Source _____ No. Acres _____
IRRIGATION DIVISION

HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.

MARKETING

AN AMERICAN FRUIT GROWER REPORT

A Rat Race?

IS advertising farm products a rat race where everybody ends up back where he started?

"Not true," says Louis A. Webster, director, division of markets at Massachusetts Department of Agriculture. "Advertising has many beneficial functions besides stimulating demand for fruits and vegetables over competing products."

Webster points out that when growers spend their own hard-earned money for advertising, generally speaking, they do a better job of grading and packaging.

Citing the greenhouse tomato deal in Massachusetts, he points out that many packs of greenhouse tomatoes increased 100% in quality as soon as the growers set aside a part of their own money for advertising.

One minute radio spots, properly placed, seemed to give Massachusetts growers more results than anything else. This is the result of the work of the Apple Institute, the Tomato Council, and the Carrot Council.

A Step Forward

THE need for keeping members well informed faces many grower-organized marketing groups. Michigan Apple Commission has taken a step toward solving this problem. A new monthly publication, *Apple Peelings*, is designed to keep the Michigan apple grower abreast of the latest developments. The commission is striving towards two objectives: the gathering of really good market information, and the accurate reporting of this information.

Standing Still

MOST grower marketing co-operatives seem to be standing still and some are even losing ground to competing types of organization.

How can co-operatives meet this challenge?

Dr. George H. Mehren, University of California, Berkeley, and Dr. John H. Davis, Harvard University, Boston, Mass., list the following weaknesses which co-operatives must overcome:

1) An unwillingness to compete for competent management with other businesses; 2) an insufficient depth of competent management within the co-operative; 3) an inadequate research program (co-ops have a greater need for research than their non-co-operative competitors because of the longer time required for policy-making in co-operative organizations); and 4) slowness in converting operations from a single commodity basis in an era requiring multi-commodity combinations and the tying together of successive steps in the marketing process.

Big League

KEEP an eye on promotion activities of Washington State Apple Commission. Advertising for the spring season has swung into the big league class, with baseball as the background and "Spring Training" as the theme.

Lew Burdette, winning World Series pitcher for Milwaukee Braves, is pitching

for Washington apples in the nation's markets, according to Howard Robertson, assistant commission manager. Burdette is featured in a short movie to be used for TV showing on children's afternoon programs. Decorative cards and posters for store displays and windows emphasize the theme. The commission has channeled \$168,000 for the promotion program in 103 markets.

Aggressive Bids

THE dried fruit industry has made aggressive bids for the nation's markets during the winter months—a period when fresh fruit supplies are scanty.

Two California marketing co-operatives, Sunsweet and Sun-Maid Raisin Growers, joined forces for the fourth time in a large-scale promotion campaign in February and March. Response from the grocery trade indicated that the timing was wise.

Color inserts in grocery trade publications in January paved the way for the high point of the program—a double-page, full color spread in *Saturday Evening Post* featuring "Sun-Maid-Sunsweet Winter Carnival of Sunny Summer Fruits." This was followed by distribution of attractive, colorful store display material.

In addition to the joint campaign, Sunsweet and Sun-Maid have each been carrying on its own promotion program throughout this crop marketing season.

Outstanding in the Sunsweet program is a schedule of five pages of advertising in *Reader's Digest* and twice-a-week broadcasts by Art Linkletter over Columbia radio network. The prune industry has also participated in NBC's "Today" TV show featuring Dave Garroway, and Duffy-Mott Co. has promoted Sunsweet Prune Juice on Don McNeill's "Breakfast Club" on ABC network.

Get-Acquainted Campaign

CHERRY Growers, Inc., of Traverse City, Mich., packs excellent, consumer-size frozen tart cherries and fresh frozen apple slices . . . but few people knew this until the co-operative launched a special advertising and promotion campaign to acquaint chain stores with its Reddi-Maid products. Response from the trade has been encouraging, and increased movement of these items has been noted.

Lemon Juice for Britain

LOOK for upwards of \$150,000 worth of lemon juice and \$100,000 worth of canned fruit to leave U. S. ports this year destined for the United Kingdom and Iceland, respectively. The USDA has issued authorization to both countries to finance purchase of these respective products from U. S. suppliers.

Decreasing Trend

WHAT can you expect from freezing as a growing outlet for fruit? Not much, says George Borgstrom, professor of food technology at Michigan State University.

Although there has been a spectacular increase in frozen fruits since 1945, it has almost all been due to frozen orange concentrate. Strawberries account for most of the remainder of the frozen fruit pack.

In contrast to oranges and strawberries, all other frozen fruits have shown a decreasing trend. Instead of freezing making it possible for consumers to enjoy the freshness of a wide variety of fruits, the opposite is true. Freezing has not lived up to its promise.

The answer? Closer co-operation between food science and food processing for new technology and new products is Borgstrom's conclusion.



'58 Dodge Power Giants give you new style for jaunts to town . . . new power for heavy hauls!

Your first trip to town in a new Dodge *Power Giant* will give your spirits a wonderful lift.

People are bound to take notice, because Dodge is one truck that's really new for '58—from smart new styling to exciting new performance. Matter of fact, comparisons show that Dodge for 1958 leads the low-priced three *all four ways*:

1. Dodge leads in styling—with sculptured, flowing lines, dual headlights, richly chromed grilles—styling you can count on not to go out of style!

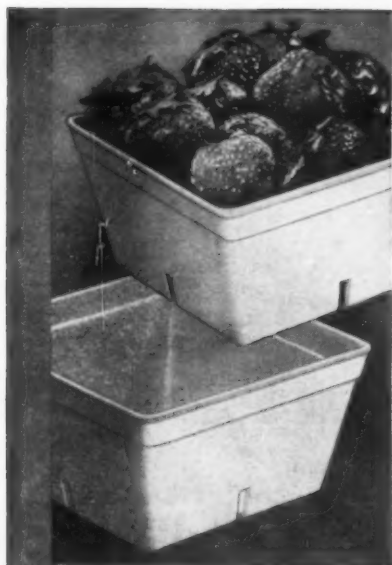
2. Dodge leads in V-8 power—in every single popular farm model. This reserve power gives you better performance, safer passing out on the highway, plenty of extra *pull* when you need it!

3. Dodge leads in payload. Advanced engineering adds strength without weight, lets you haul up to $\frac{1}{3}$ more—save trips, time, fuel!

4. Dodge leads in economy—low in price, low in operating cost. Exclusive Power-Dome V-8 design gives *full* power—and more miles per gallon—on money-saving *regular* gas!

Remember, it pays to compare before you buy a new truck. So, instead of habit-buying the same old make, be sure to take a few minutes to drive a new '58 Dodge *Power Giant*—and to get your dealer's special Dodge Truck 40th-anniversary deal. You'll be money ahead if you do!

DODGE *Power Giants*



NEW KYS® BERRY BASKETS

Cut packing costs and
improve display of
fruits and vegetables

- ★ Made from pure, white woodpulp for attractive display.
- ★ Proper absorbency and ventilation protect your product.
- ★ Individually molded for extra strength and rigidity.
- ★ Uniform size and shape . . . capacity approved by U.S.D.A.
- ★ More economical than any ordinary pint container.

By the makers of famous
ROYAL CHI-NET®
Molded Paper Plates

MAIL THIS COUPON

Keyes Fibre Company, Dept. AF
Waterville, Maine
Please send further information on
KYS® BERRY BASKETS.

NAME

NAME OF FIRM

ADDRESS

Be Wise-Buy



Berries

STRAWBERRIES

Nematode Control

AS a supplier of strawberry plants to commercial growers and nurseries, it is essential that we grow nematode-free planting stock.

Our first contact with nematodes occurred when we imported some new varieties of strawberry plants from outside sources. The coarse roots of these plants were covered with nodules and showed a marked absence of fine root hairs. Michigan State University plant nematologist John Knierim found that they were infested with root-knot nematodes.

We were told that the hot water treatment of infested planting stock would eliminate the nematodes. This treatment consists of immersing the fully dormant plants for two minutes in hot water at 127° F. The plants are then drained, dried, and placed in storage at 32° F. until planted.

The second recommendation was fumigation of our soil to eliminate nematodes. We used the fumigant, ethylene dibromide (Dowfume W-85, manufactured by Dow Chemical Company). A lift-mounted, hydraulically controlled applicator injected the fumigant at the rate of 9 gallons per acre at a controlled depth of 6 to



Applying soil fumigant at Zollar Nurseries in fall before planting to strawberries in spring.

8 inches, then floated or sealed the soil to retain the gases. Soil samples checked after fumigation showed no live nematode residual. Cost of fumigation was about \$70 per acre.

Besides reducing the nematode population, fumigation had an unexpected result. Strawberry plants grown on the fumigated soil showed greatly increased growth and vigor compared with those grown on unfumigated soil, even though there was a low nematode count on both plots before fumigation.

Because of the increase in pro-

Profits and Production DEPEND ON THE TREES YOU PLANT

- BUD SELECTION
- TRUE-TO-NAME VARIETIES
- PROVED and PROFITABLE

The Greening Nursery Company, one of the leaders in bud selection, have for over 100 years given all growers the benefit of their research and improved strains which mean greater orchard profits.

AGENTS

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AMERICAN FRUIT GROWER

Florida grove operator reports big economy and good pest control with OLIVER Diesel Spra-Blast



"I offer a complete grove service to citrus growers—oiling, nutritional applications, foliar sprays—and have used an Oliver diesel Spra-Blast for two years, pulled by diesel Super 77. They've made a really profitable team. Together they use less than 27 gallons of fuel while applying 45 to 50 tanks of spray material. And I haven't needed to lay a wrench on the spray for maintenance."

Says: Henry D. Gilliard
Wauchula, Florida



Enthusiastic reports such as this are coming in from orchard and grove operators wherever the Model 500 Spra-Blast is used: big diesel economies, excellent coverage, low upkeep costs.

It's the *extra* advantages you get with an Oliver that have given the Model 500 a big send-off. Such *extras* as diesel fuel savings, 38-inch airfoil design fan with high output at 1850 r.p.m., ultra-vision instrument panel, specially treated 500-gallon tank, hydraulic hitch jack—all at no extra cost.

See your Oliver dealer and arrange for a demonstration of the Oliver Model 500 Spra-Blast in your own orchard or grove. The Oliver Corporation, 400 West Madison St., Chicago 6, Illinois.

 **OLIVER**
"FINEST IN FARM MACHINERY"

Also Manufacturer of the Famous Oliver Outboard Motors

duction, we feel that it is commercially profitable to fumigate every field before planting to strawberries. Many commercial growers in our area are fumigating their strawberry plantings as a result of our findings.

We recommend fall fumigation because soil conditions, both as to temperature and moisture content, are more stable than they are in the spring. The soil must be prepared for fumigation by thorough tillage to a depth of 10 inches. Soil temperature must be 50° F. or more for best results, and the ground should be fairly moist. The fumigant should be allowed to remain undisturbed for at least 10 days, after which the soil should be aerated thoroughly to allow residual gases to escape.—Charles O. Zollar, Zollar Nurseries, Benton Harbor, Mich.

Robinson Favored

THE Robinson variety of strawberry is the favorite among Michigan growers. Last year Robinson accounted for 55% of the fresh market volume, Premier 35%, and other varieties such as Sparkle, Fairland, Tennessee Beauty, Empire, and Blakemore, the balance. Good quality Robinsons also topped the market in price, often bringing

\$1 or more a case higher than other varieties.

Michigan's 1957 strawberry crop was a record breaker. About 11,600 acres were harvested. The bulk of the crop of 46 million pounds (nearly 2 million 16-quart crates) was sold on the fresh market and brought growers higher prices than they received the previous year.

Nearly 650,000 crates (16-quart) were sold over the Benton Harbor fresh fruit market, smashing the former record of 553,000 crates. In addition, nearly a million crates were sold fresh in other Michigan areas. Quality offerings sold for \$5 or higher per crate.

The post-war low price paid by processors caused some of the proc-

essing crop to be diverted to fresh markets. Growers were paid an average of only 10 to 11 cents per pound for capped strawberries last year. As a result less than one-fourth of the crop, or 10.5 million pounds, were processed. This was a sharp drop from previous years when one-third to one-half the crop normally had been processed.

Strawberry acreage in Michigan in 1958 will be slightly lower than in 1957 or about 11,000 acres.—Harry K. Bell, Michigan State University.

CURRENTS

Larger Clusters

RED currant culture has a goal of large clusters for ease of harvest as well as a high yield per acre.

Research in New York in the period 1948-57 has explored some of the factors affecting currant bush performance.

Dr. Nelson Shaulis, professor of pomology at New York State Agricultural Experiment Station, Geneva, points out in the January, 1957, issue of *Farm Research* that the clusters of the Red Lake currant are larger than those of Wilder.

However, investigations at the Vineyard Laboratory, Fredonia, N. Y., and the William Burrichter plant-



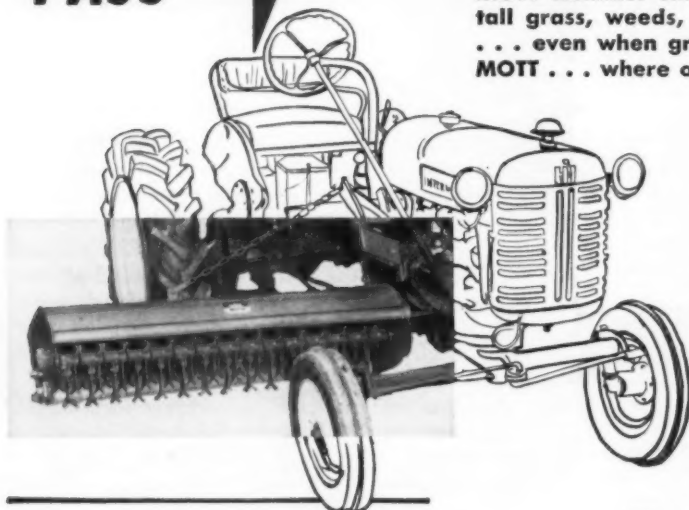
Photo by Paris Trall, Geneva Exp. Station
Wilder, Red Lake currant planting in alternate rows at Fredonia in 1951; 9 x 3 foot spacing.

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PASS—**

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Clean, Neat... In less time... At lower cost!

MOTT Hammer Knife Mowers cut and shred tall grass, weeds, light brush and seedlings... even when ground is wet. Mow with a MOTT... where others cannot!



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A MOTT Mower wades in and leaves an even carpet of mulched cuttings that holds moisture and conditions the soil with natural humus for greater yields. You can easily mow with a MOTT where others cannot—close-in, around and under trees, regardless of grass height or ground roughness. Durable free-swinging knives can be sharpened in minutes—or replaced at dime store prices. MOTT Hammer-Knife action prevents flying sticks, stones and other debris. MOWERS are rugged, simple in design to give years of trouble-free service. MOTT saves in three ways—in first cost economy... operating economy... and maintenance economy.

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On Four Wheels!**



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Get full details now: write for Bulletin 158 on Prestfin coils or call your nearest Frick Branch or Distributor.

FRICK Company Waynesboro, Penna.



GRAFTWAX TREE HEALANT

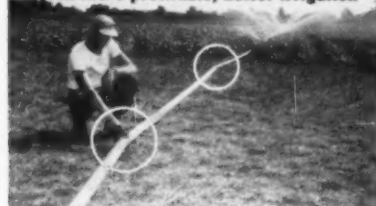
Since 1929 excels in grafting; cures tree and plant wounds, blights, used for cavities. Repels rodents. Adhesive, waterproof. IT SEALS AND HEALS. APPLY COLD. Put up in 1 lb. cans, \$1.05 per lb., \$2. per 2 lbs. \$5. per 5 lbs., postpaid. W. or Mississippis R. add 15c per lb. Pa. orders add tax—Free Sample

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Dept. A-53 **ROTO-HOE** Newbury, Ohio

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Attach This Order to Letter or Card with Name and Address

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Send me additional information on Aerosprayer... Power Aerosprayer... and name of dealer.

AIROSPRAYER COMPANY

DEPT. A **NEODESHA, KANSAS**

ing, Sheridan, showed that Red Lake yields per acre are not greater than Wilder. On infertile or droughty sites, the more vigorous Wilder is more productive than Red Lake.

The Fredonia experiment also revealed that cluster size is affected not only by variety choice, but also by retention of too many or too old fruiting shoots. However, the planting can be unprofitable if pruning is too severe for maximum cluster size.

Maximum production is obtained by close spacing which is consistent with the pruning necessary for moderate cluster size and reduced cultivation for preserving roots. Bushes should be placed between 2 and 4 feet apart, depending on variety and soil.

In regard to fertilization, it was found that currants are sensitive to the chlorine in muriate of potash. Use of muriate of potash (potassium chloride) resulted in stunting of the bushes, dead leaf margins, and reduction in yield amounting to 800 pounds per acre annually. Use of sulfate of potash did not have these ill effects.

Chlorine-containing fertilizers such as muriate of potash and almost all mixed fertilizers containing potash should be avoided.

Research also disclosed that the herbicides which were tested or deep cultivation can readily damage currant roots, which are close to the surface and not extensive.

RASPBERRIES

Hardy Black

SOMO black raspberry is a Missouri introduction of unknown parentage. The name Somo (abbreviation for South Missouri) was given for its point of origin. Black raspberries have been difficult to raise in southern Missouri because of disease, drought, and winter injury.

The original vine of Somo has been bearing for 12 years. No other black raspberry at the Missouri station has equaled its growth, hardiness, production, and resistance to disease. Some anthracnose has shown up, but not enough to be a problem. The plants grow tall, stand up well, but root readily at the tips.

The berry is average in size, firmness, and appearance. Its quality is very good either fresh or frozen. Medium-large drupelets do not crumble in handling. Fruit is early to ripen, ahead of Cumberland and Kansas. Berries get somewhat smaller as the season progresses, due to high production and a long harvest season.

AMERICAN FRUIT GROWER

ONLY 3 CROP LOSSES

(Continued from page 12)

"frost-free," but when the lower spots get frosted out, the crop on the higher elevations more than makes up for the financial loss.

Prices were disastrously low in 1937, another bumper-crop year of tree fruits for the state. We were saved only by the help of our small reserves acquired the previous year.

The 1938 crop in neighboring orchards was greatly reduced by a freeze in blossomtime, but site and location gave us fairly good protection again, and a profitable crop was harvested. That same year, my father handed over the farm operation to my brother and me.

We continued to plant more orchards, eventually crowded out the dairy herd, and directed all of our efforts towards developing a 100% diversified tree-fruit farm.

The erection of cold storage facilities and our own packing and marketing program soon followed and have helped us materially to realize more benefit from location.

We have become more conscious of the need for preserving our best orchard sites, and, therefore, have been using soil conservation practices to maintain and build back fertility on eroded slopes. Sod and modified sod culture, contour orchards, and tile drainage have been common practice on our farm for many years. Better production and longer-lived trees have been our reward.

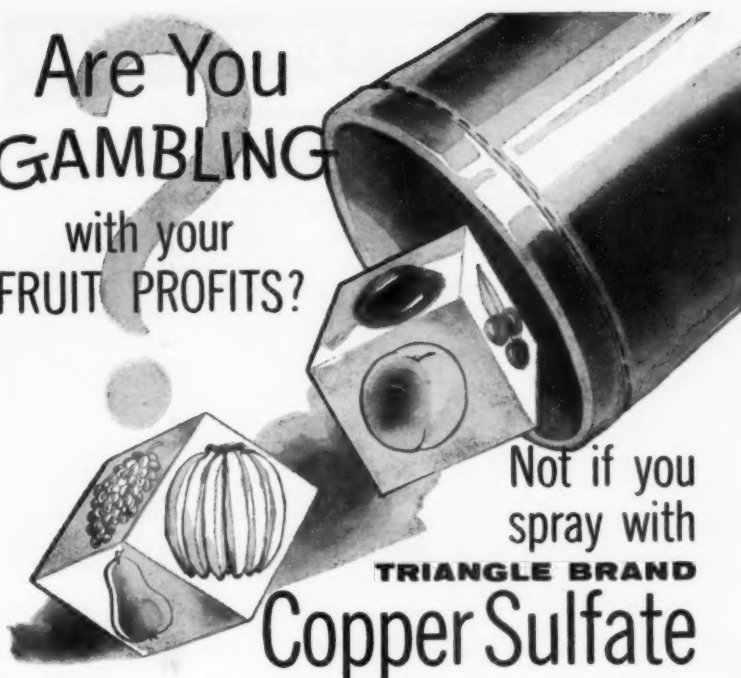
The 20-below-zero temperatures experienced in southwest Michigan in November, 1950, was a hard blow to fruit growers. We lost our 1951 crop and some trees, but the tree loss was not as serious as in most other locations. A fair crop of apples, cherries, and pears brought us through this crisis, and we have harvested consistent annual crops since. The only total crop loss in apples was in 1945, when a combination of spring frost and poor pollination reduced our harvest to only a few bushels.

Since 1880 our orchards have only missed producing a peach crop in the years 1906, 1934, and 1951. This record is certainly one good reason why my brother and I are the fourth generation, and our 20-year-old-son, Karl, is the fifth generation to continue the ever-challenging fruit growing industry on the same farm.

Many factors influence the success or failure of a fruit growing operation, but I believe that proper site and location are just as important today as a century ago. THE END.

APRIL, 1958

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Not if you
spray with
TRIANGLE BRAND
Copper Sulfate

The most troublesome plant diseases are controlled with Copper Sulfate Bordeaux — Bitter Rot, Scab, Blotch, Fruit Spot, Black Rot, Cloud and Phoma Fruit Spot of Apple, Anthracnose of Cantaloupe, Watermelon and Small Fruits, Black Rot, Bitter Rot and Downy Mildew of Grape, and many of the diseases attacking the foliage and fruit of citrus and nut trees.

Triangle Brand Copper Sulfate and Basic Copper Sulfate in sprays and dusts are known to be dependable in combating these diseases. More than 70 years of superior performance has eliminated the risks that successful growers refuse to take when profits are at stake.

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Help the Bees Help You Produce a Full Crop With the BEEHIVE INSERT!

From the 1957 Wash. State Hort. Ass'n "Proceedings:" "Experiments with caged apple trees at Wenatchee and Pullman (in 1957) indicate that fruit sets can be obtained by the use of Pollen Inserts (in Beehives). Pollen from hive inserts was carried up to 135 yards into an orchard." (The Beehive Insert principle is covered by two of our patents.)



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Fruit Tree Pollen Supplies Co.
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POLLINATION

(Continued from page 13)

tween 65 and 80° F., and these processes are likewise retarded or nearly stopped at temperatures below 60° F.

Under favorable conditions the stigma of the flower becomes receptive to pollen germination at the time it is exposed by the unfolding of the petals. The anthers also start dehiscing their pollination within a few hours after the flower opens. After three or four days of sunny weather the stigma usually turns brown and is no longer receptive. Hence, the possible time of pollen tube growth on the stigma is limited to this relatively short period.

Early workers concluded that under laboratory and greenhouse conditions the pollen tubes of apples and plums traversed the style to the embryo sac in two to six days. Recent laboratory studies at Davis with almond, apricot, Japanese plum, and sweet cherry varieties showed that the pollen tubes grew the full length of the style in three to four days. Hence, if fertilization is to take place under orchard conditions, undoubtedly even more time is needed.

The styles of the flowers do not begin to absciss until about two weeks after blooming, but the abscission layer starts developing several days before abscission takes place. Since the partly disintegrated cells interfere with pollen tube elongation, the abscission layer in the style also sets a definite time limit on pollen tube growth. The later in the receptive period pollination takes place and the more tube growth is retarded, the more uncertain fertilization becomes.

Experiments indicate that the embryo sac starts disintegrating within three or four days after the flowers open. This also sets a time limit on possible fertilization and fruit set.

Periods of continuous rain prevent anther dehiscence as well as bee flight. Trees which have been kept continuously wet during the blooming period by spraying have given poor fruit sets. Short periods of rainfall, on the other hand, evidently do not interfere very much.

Dilution of the stigmatic fluid by rain would not seem to prohibit pollen tube growth, since germination takes place in a considerable range of sugar solution. The stigma has more than one period of active secretion, and if the first fluid were removed by rain, it would be replenished under favorable conditions.

Rain may temporarily close the anthers or prevent them from opening, but it does not burst or kill an appreciable amount of pollen. Neither does rain wash many pollen grains

from stigmas. Stigmas subjected to rain for 14 hours were found to retain many pollen grains.

Low humidity may dry the stigma or style and reduce pollen germination and tube development. In the Sacramento Valley, the strong, desiccating north winds which often prevail during the blooming period are often associated with poor fruit set.

What is the effect of these various limiting factors upon parthenocarpic fruit set? The Bartlett pear has been shown to be self-fruitful in most California orchards because it can produce parthenocarpic fruit. We have eliminated both self- and cross-pollination under controlled conditions and know that under favorable conditions the Bartlett will set commercial crops with no stimulation of pollination, pollen tube growth, or fertilization. With this favorable situation, why do we have to worry about low temperatures and other unfavorable weather factors during the blooming period?

We have but to look back to the blooming period of 1948 when a crop failure of Bartletts occurred in the Sacramento River district. Although there were no killing frosts, the weather was cold and rainy throughout the entire blooming period. The fruit set was very light in orchards interplanted with pollinizers, but it was even lighter in orchards planted in solid blocks.

In another case, with the aid of thermograph records made in their orchard, the managers of a large California pear orchard correlated their total annual yields with the number of hours above 60° F. for each of 14 years. The average date of full bloom for these years was March 30.

During this pollination and fruit-setting period for the seven years when heavy crops were obtained, there was an average of 249 hours when the temperature was above 60° F. The four years of medium yields had an average of 196 hours above 60° F., and the three years when very light crops were produced had an average of only 81 hours above 60° F.

In view of these possible hazards, what can the grower do to help compensate for an unfavorable blooming season? He can make adequate or abundant provision for either self- or cross-pollination. In selecting pollinizing varieties the grower should consider the time of bloom, amount of pollen produced, viability of pollen, regularity of blossoming, and the commercial value of the pollinizer. In addition, many growers now expect the fruit of the pollinizer to mature with that of their principal variety so it will fit into their spray, irrigation, cultural, as well as harvesting schedule.

THE END.

APRIL, 1958

Get the "Bugs" before they get your fruit . . . with **WISCONSIN-POWERED** Orchard Sprayers



The John Bean Division of Food Machinery and Chemical Corporation, Lansing, Mich., specifies Wisconsin Engines for many of their orchard and grove sprayers.

IN the never-ending "battle of the bugs", your chances of winning are best when you employ the most efficient and reputable spraying equipment for this vitally important job.

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- 140° F. No freeze-ups; no dry-ups.
- A world-wide service organization . . . more than 2,000 Authorized Wisconsin Engine Service Stations carry stocks of factory-recommended parts for ALL Wisconsin Engine models.

These are some of the reasons why leading manufacturers of orchard spraying equipment specify "Wisconsin Engine Power". You can't do better than to follow their lead. Write for Bulletin S-223.



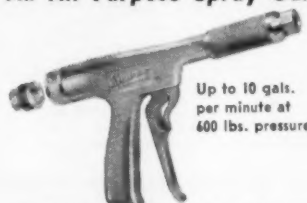
Bes Blo trailer unit sprayer, made by Besler Corporation, Emeryville, Cal. A 2-cylinder Wisconsin Air-Cooled Engine supplies the power.



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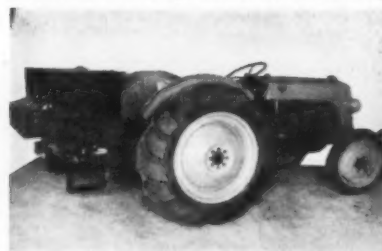


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The WE Combinations with two 6 ft. sections is recommended since it can be used as an 8 1/2' pole using one section, or a 14 1/2' pole by using two sections.

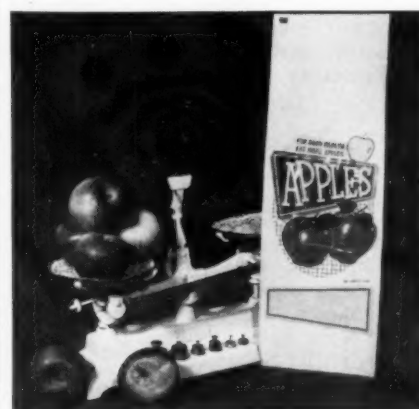


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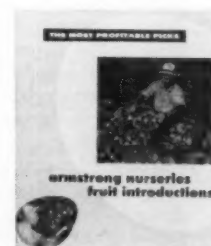
Printed Apple Bag

Growers in the East and Middle West used to good advantage an attractively printed polyethylene apple bag last fall. The bag is so designed that your name or orchard name and address can be printed on the bag. The bags are made and printed in 3- or 5-pound sizes. A total of 1500 of the 3-pound size are packed in a case and cost \$16.95 per thousand; 2000 of the 5-pound bags are packed in a case at \$18.45 per thousand. To imprint your name and address, the manufacturer must have an order of 15,000, and the cost for imprinting is \$1.50 per thousand. It's a very inexpensive way for the grower to get into prepackaging. Why not write Merton O. Koch, Keystone Packaging Service, 1012 Washington St., Easton, Pa. He'll be glad to give you full information.

Be sure to mention **AMERICAN FRUIT GROWER** when writing manufacturers.

Peaches

One of the surest ways to fruit growing success is the planting of good acceptable varieties. The peach and nectarine grower is particularly interested in which ones are good shippers, which bear early or late, which bear heavy. A four-color booklet is available to our readers answering some of these important questions. The booklet is free and tells of Armstrong Nurseries fruit introductions. You can easily get your copy by writing Jim Story, Armstrong Nurseries, Ontario, Calif.



- Chemical Grass Control
- Pallet Box Dumper

Orchard Magic

Controlling grass around pear and apple trees is a problem to all growers. Just recently a new chemical has been discovered which does the job with ease. The chemical, called Dowpon, is applied when the grass is growing well and is 6 to 10 inches high. Michigan growers tell us that Dowpon reduces grass close to the trees and allows the trees to get all of the plant food available. By controlling orchard grass, rodents are discouraged. In asparagus planting, the new chemical also works wonders. It is applied before cutting and then three or four weeks later or in the fall. A bulletin is yours by merely writing Bill Richardson, Dow Chemical Co., Midland, Mich.



Cut Costs

Growers with whom I have talked in the last six months are becoming more interested in reducing production costs. One of the ways profit-minded New York growers are doing this is through the use of pallet box dumpers. Growers who have investigated dumpers available tell me that the one pictured above does the job day in and day out. All steel construction, and hydraulically operated, this orchard-tested dumper is built in various heights to accommodate all hoppers. The same company also has developed a Load Rotor which makes possible inside and outside pallet box handling. Piper & Paine, Nunda, N. Y., are the manufacturers, and they will send you all the facts.

APRIL, 1958



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STANDARD NAILED WOODEN LUG BOX

- For 2-Layers of Cup Packed Peaches
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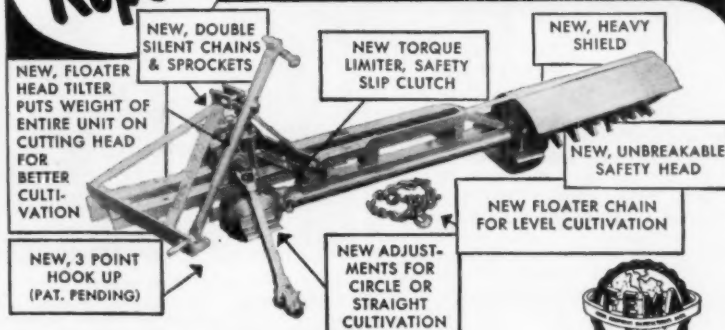
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BETTER GROWTH; LESS RODENT DAMAGE

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WADE RAIN Orchard Installations save hundreds of irrigating hours annually.

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WADE RAIN's even moisture distribution nurtures growth of feeder roots for healthier trees all through the orchard. No Ditches — Saves wear and tear on expensive orchard equipment.



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HANDY HINTS



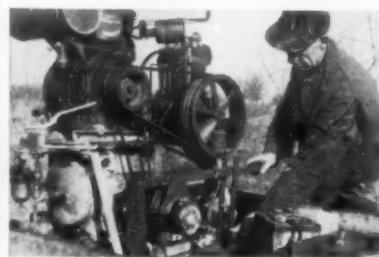
Photo by A. M. Mettuch
PAINTS TREE WOUNDS

Roy Ward, who does custom pruning in Mt. Pleasant, Iowa, protects tree wounds by applying an asphalt base paint. His rule-of-thumb: "Paint all wounds bigger than a quarter-dollar."



REPELS DEER

A small tobacco bag filled with moth balls is used to repel deer at Dillon Orchards, Hancock, Md. It does a reasonably good job of stopping the deer from nibbling young foliage and buds.



SAVES ARM WORK

Starting his gasoline engine on a chilly spring morning is no problem for Alfred Harrington, Berrien Springs, Mich. Auto starter is rigged up to battery, and belt runs from starter to pulley wheel on engine, which operates compressor for power pruning. As he pushes on starter button with left hand, he bears down on the arm with his right hand tightens the belt which turns the engine over. When engine starts, he releases the tension arm.

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SELF-PROPELLED POWER HOE



Designed to take the backache out of strawberry growing, this Friday Power Hoe will cultivate, hoe, and weed in one operation. The machine is guided like an airplane (with the feet), leaving the hands free to operate the hoes. These hoes take out the weeds in the row, the cultivators clean up between the rows, and the spring-tooth weeder removes all small weeds and also straightens the runners in the row. You can clean up an acre of strawberries in 2 hours. The power hoe can be used on such other row crops as cabbages, tomatoes, cucumbers, etc. Powered by a 9.2 h.p. Wisconsin engine, its rugged construction will give you many years of trouble-free service. Designed and built by one of Michigan's largest strawberry growers.

Write for descriptive literature
Friday Tractor Co.
HARTFORD, MICH.

AMERICAN FRUIT GROWER

BORON IN OREGON

(Continued from page 16)

during the summer to keep the excessive growth of grass and legumes under control. While a few growers use no tillage implements of any kind, most orchards are tilled in the fall and spring in order to cut up the sod and reduce the hazard of tree injury by mice. If a tillage program is to be followed, fall cultivation is recommended, using either a depth control disk or a rotovator.

It is important that all tillage be done at a shallow depth to avoid root injury. Timing of fertilizer applications should be determined by type of fertilizer being used.

The use of boron, applied as a foliar spray or as a ground application, has paid big dividends throughout the valley. A foliar spray of Polybor applied at the rate of 1 to 2 pounds per 100 gallons of water in early spring or fall must be made every year. An adequate ground application amounting to 65 to 70 pounds of agricultural borax per acre will supply the boron requirements for three to four years.

Nitrogen is the major fertilizer needed for adequate fruit production in this area. Fall applications are not recommended as they may aggravate the possibility of winter injury.

Generally speaking, growers should use the nitrogen fertilizer that proves to be the cheapest per pound of actual nitrogen. It is important to remember that the nitrate form is immediately available for plant utilization whereas the ammonia and urea forms must be converted in the soil before the nitrogen is available to the trees.

Cyanamid and urea may be applied in late winter and early spring. Cyanamid should be applied six weeks before tree growth starts, otherwise foliage and blossom injury may occur. Ammonium sulfate is usually applied in this area in March or early April. Nitrate forms such as ammonium nitrate will give best results if applied within two or three weeks of tree growth.

Most growers are applying from 1 to 2 pounds of actual nitrogen per mature fruit tree. The amount to use should be determined by the growth and vigor of the tree. Excessive use of nitrogen may increase pruning problems and reduce fruit color. Many growers apply nitrogen by hand in order to vary the amount of fertilizer according to the age or vigor of the trees. Some use a spreader and then add an additional amount by hand for specific trees.—*Lee R. Foster, County Ext. Agt., Hood River.*

APRIL, 1958



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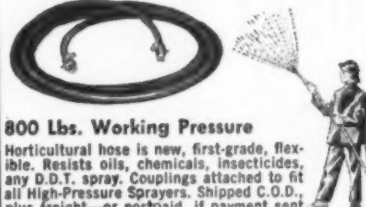
Rear's also manufacture Trailer Model Pull-Tank with all the above features—200 and 300 gal. capacity.

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CHOICE OF LENGTHS	3/4"	1"	1 1/4"
25 ft.	\$10.25	\$11.75	\$16.25
50 ft.	19.00	21.75	30.00
75 ft.	27.75	31.75	43.75
100 ft.	36.50	41.75	57.50

Agricultural Rubber Products Corp.

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SOUTHERN CALIFORNIA

(Continued from page 15)

plans have been made to plant an additional 5000 or 6000 acres in the next few years. Several thousand acres have recently been planted in Riverside County and, with additional water soon to become available, some 5000 or 6000 acres more are likely to be planted.

State planners estimate that the irrigated land in California must increase threefold in the next 20 to 30 years in order to keep pace with the demands of the growing population.

Citrus.—California grows four principal types of citrus: lemons, oranges, grapefruit, and tangerines.

The lemon industry is concentrated somewhat closer to the coast than is the orange industry. However, there is appreciable production of lemons in the inland valleys, such as the Upland and Corona areas.

The principal variety grown is the Eureka, but in new plantings, selected strains of the Lisbon variety are finding increasing favor. The major harvest period for lemons is between January and July, but some lemons are harvested in every month of the year.

Because of the lemon industry's concentration in the coastal and inland valleys of the Los Angeles basin and in coastal areas in the Ventura-Santa Barbara region, which are not greatly affected by population growth, lemon acreage has remained fairly static for the past 20 years. There has been a considerable upsurge in new plantings during the last four or five years.

About 99% of all oranges grown in California are of two varieties, navel and Valencia. The navel attains its finest dessert quality in the inland valley plantings of southern California. These areas are characterized by hot, dry summers and relatively cool nights throughout the year except for two or three months during mid-summer.

The earliest navels to ripen come from the Central Valley area, centered around Tulare County. Harvest usually begins in mid-November and is completed by the middle of March, as a rule. This area grows about 35,000 acres of navels.

In the southern citrus growing counties there are currently about 33,000 acres of navels as compared with 56,000 acres 10 years ago, or a decrease of about 41%.

Navel oranges are not well-adapted for the manufacture of frozen orange juice concentrate.

Today there are in central California about 13,000 acres of the Valencia variety, an increase of about 2000

acres in the last 10 years. In the southern counties there are about 70,000 bearing acres today as compared with over 137,000 acres 10 years ago, a decrease of about 43%. These are concentrated most heavily in coastal valleys.

Harvesting of the Valencia variety begins in April and ends in June in the Central Valley area. In the southern counties, Valencia harvest begins in May and continues throughout the summer, ending about the first of November.

The California Valencia is the orange commonly found on the markets in the summertime. Its peak harvest is in a period when competition from Florida and Texas is at a minimum. The California Valencia, in addition to being a prime dessert quality fruit, is especially valuable for the manufacture of frozen concentrate because of its rich color.

Most of the grapefruit is grown in the southern counties and particularly in the warmer inland and desert valley areas. These have about 11,000 acres devoted to this crop as compared with about 18,000 acres a decade ago. The principal variety grown is Marsh.

In the desert valleys, grapefruit is harvested from November through June. In the cooler inland valley areas, grapefruit is harvested largely during the summer months, from about the middle of June until the first of October.

Tangerines are grown almost exclusively in the Coachella Valley. More than 1000 acres are devoted to the Dancy and Algerian varieties. There is considerable interest in this desert area in the growing of some new hybrids of the mandarin type and also tangelos, which are grapefruit-mandarin hybrids. Several hundred acres have been planted in recent years to these new specialty types.

In addition, there is some interest in Satsuma culture in the Central Valley. The development of improved virus-free strains has stimulated interest in this crop. The Satsuma is an early mandarin-type fruit which is grown extensively in Japan.

In the coastal and inland valley areas rainfall, occurring mostly in wintertime, amounts to from 10 to 20 inches per year. In these areas 24 to 48 inches of supplemental irrigation is applied during the hot summer months. In the Lower Colorado desert regions, such as the Coachella and Imperial valleys, where rainfall ranges between 3 and 5 inches per year, from 5 to 8 feet of supplemental irrigation water may be used annually.

Much of the cost of developing land for orchard planting is due to the necessity of supplying a source of

irrigation water and a distribution system to bring the water to the orchard, and of providing a distribution system within the orchard. Frequently, considerable leveling of the land also is required to enable satisfactory distribution of irrigation water. In addition, most citrus orchards in California are provided with wind machines and/or orchard heaters to protect fruit and trees against severe frost damage.

Thus the investment required for these operations represents a substantial fraction of the cost of producing citrus in California. On the average, this amounts to about \$1.25 per 77-pound box of oranges on the tree. From 400 to 500 boxes per acre on a well-maintained mature orchard is considered a good yield.

Avocados.—The avocado appears to have been first introduced to California from Central America about 100 years ago. Today about 24,500 acres are devoted to commercial avocado production. The industry is established primarily in the coastal and coastal valley areas of San Diego, Orange, Los Angeles, Ventura, and Santa Barbara counties.

Since the avocado is more susceptible to frost damage than citrus, it is grown successfully only in orchard sites having a very low frost hazard. Most avocado orchards are located on hillsides or slopes and most varieties do best in the cooler climate near the moderating influence of the Pacific Ocean.

Like citrus, avocado orchards must be supplied with supplemental irrigation in the dry summer months. Because of the steep slopes, sprinkler irrigation is more commonly used than furrow irrigation.

The Fuerte, introduced by importing budwood from Mexico in 1911, is by far the most important commercial variety, accounting for more than two-thirds of the total production during the past 20 years. Principal harvest season for California avocados is December through June.

Dates.—About 5000 acres of dates are grown in the low desert region of the Lower Colorado Basin of southern California, having a mean annual rainfall of 5 inches or less. The main center of production is in the Coachella Valley.

The early Spanish missionaries planted date seeds around many of the missions but production and quality of these were disappointing. In 1890 the USDA imported suckers or "off-shoots" of some of the better varieties from the commercial date growing areas of Iraq, Algeria, Tunisia, and Egypt.

These early plantings of imported varieties demonstrated that they require a hot, dry climate with almost

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GROWERS OPPORTUNITY PAGE

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IRRIGATION PUMPING UNITS—OF ALL kinds. Self priming pumps, sprayer pumps, filter pumps, orchard sprayers. Write me your needs and save money. JIM HADDAN, P.O. Box 808, Battle Creek, Michigan.

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PLANTS

GREAT NEW CANADIAN BERRIES—1958 catalogue lists four. Also for sale with full U.S. distribution rights, black raspberry with very small seeds and very late strawberry. EDWARD LOWDEN, Ancaster, Ontario, Canada.

TENN. REGISTERED (VIRUS FREE) strawberry plants, Blakemore, Dunlap, Missionary, \$6.00 thousand. Premier, Robinson, Tenn. Beauty, \$8.00. Pocahontas, \$10.00. SMITH BERRY GARDENS, Ooletwah, Tennessee.

BURPEE'S "BIG BOY" F-1 HYBRID Tomato plants. Live delivery guaranteed. 12—\$1.25; 50—\$3.75. Postpaid. FRANCIS W. PETRIE, 411 South Ravenel, Columbia, South Carolina.

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APRIL, 1958

complete absence of rainfall during the ripening period from midsummer through early winter. Although the date palm can survive long periods of very dry soil, 60 to 120 inches of irrigation water per acre of palms, depending on soil and other factors, is required in the Coachella and Imperial valleys in order to produce maximum yields of high quality fruit.

More than 80% of all the dates grown in California are of the Deglet Noor variety, which came originally from Algeria. The Medjool variety, imported from Morocco in 1927, is showing considerable commercial promise. Dates are harvested during the period beginning about the first of October and ending about the first of January.

Semi-tropical, evergreen tree fruits such as the cherimoya, guava, lychee, white sapote, and macadamia nut can be grown in some of the warmer locations in southern California, but so far none of these have attached any appreciable commercial importance.

THE END.

UNIONS

(Continued from page 11)

This local increase in costs, however, is not the only nor the greatest disadvantage that western growers suffer in comparison with eastern competitors. The railroads and trucking firms for similar reasons are continually increasing their rates. Every outfit that touches the apples until they reach the consumer is unionized and demanding higher wages.

Western growers with these disadvantages must deliver their apples in competition with apples grown nearby with short hauls and little union handling. So far they have been able to do so to a reasonable extent.

But eastern competition is becoming more severe. Apple growing in the East is passing into the hands of amply financed growers with large acreages. These men are introducing the most efficient methods of growing, packing, and delivery. They are raising the new red bud sports that nullify the advantage in color which the western sunshine gives.

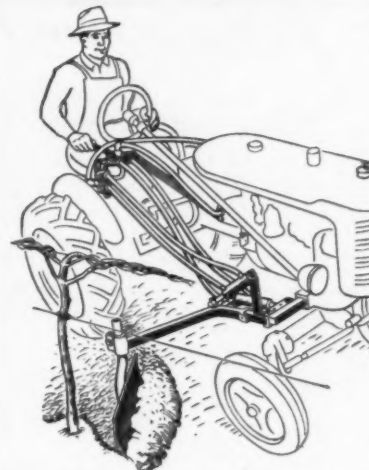
Growers all over the state of Washington are planting apples freely. Can they all be wrong? One shipper markets great quantities of apples, including some that he raises himself. Last spring he planted 200 acres of fruit, 160 of them apples. He should have a good view of market conditions, present and prospective. Can he be wrong? Let us hope not.

But it seems that the condition should be well considered, especially in view of the fact that the per capita consumption of apples is continually declining.

THE END.

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An apple orchard, row on row,
You get a thrill deep down inside
To see those trees take hold and grow.

How pleasant to the husbandman
To help his Lord to grow a tree;
A sense of real accomplishment
Shines on his face for all to see.

With eyes on future bumper crops
He wisely shapes its eager head;
With care he firmly tamps the soil,
As though he put a child to bed.

Oh yes, I know today has brought
An auger strong to dig the hole,
But still it takes much thought and skill
To row them straight across the knoll.

Full well he knows that storms and bugs
Will plague his trees throughout this life,
Vicissitudes to try the soul,
Yet he can laugh at daily strife.

For men of little faith know not
How near success to failure lies,
But men of vision trust in God
And fill the earth with apple pies!

—Albert L. Mason

Marketing Agreement

THE Washington State Horticultural Association has been conducting a series of educational meetings in important apple sections of the state "to explore and evaluate a federal marketing agreement as an instrument in meeting some industry problems."

This is good news. Maybe marketing agreements have no place in the Washington apple industry, but at least the industry owes it to itself to study and evaluate the situation.

Already a special committee appointed by the society has issued a summary of the major provisions of an apple marketing agreement. And in this survey one reads, "The Marketing Agreement is primarily an enabling document setting forth the authority given the Industry through its elected Committee."

Further, the committee reports that regulatory provisions provide "Authority to establish quality regulations in the field of grade, size, and maturity . . . The Industry, if it desired, could establish certain requirements with respect to both maturity and excessive maturity . . . Fruit failing to meet the grade, size, and maturity requirements set by the committee could not be shipped fresh."

Some people, especially in eastern circles, let themselves become so emo-

tionally aroused that they cannot even discuss marketing agreements in a rational mood. This is regrettable. It is a good sign when part of the industry, at least, can examine these problems objectively for what use they may or may not be.

Economic Climate

GROWERS and processors alike are living in an entirely different climate than they did immediately following the war. Competition is even more keen, not so much between sections as between commodities. The result is a tendency to draw commodity groups together. It becomes less a battle between processors of cherries and growers of cherries, and more a battle by the combined resources of both growers and processors of cherries for their place in the economic sphere of things.

Some have not been able to see this and have seemingly aided and abetted any natural antagonism so that they themselves may benefit. But little by little, the idea is getting across that there is more to be gained by working together than by quarreling.

All in all, the picture is clearer and brighter. All power to those who are extending their talents in these directions.

Fruit Growing is Such Fun!



"There's a salesman from the dwarf fruit tree nursery to see you, dear!"

Fruit Talk

If you are not a citrus grower and not as familiar with citrus as you wish you were, try **F. P. Lawrence's Citrus Fruit for the Dooryard** (Bulletin 166, University of Florida, Gainesville) for a concise review of varieties, soils, climatic adaptation, pruning, fertilizer, and insect and disease pests.

Weaver and McCune of the University of California at Davis have reported most interesting and suggestive responses of grapes to gibberellin at 1 to 20 ppm—increased fruit set, larger berries, elongated clusters, lower total soluble solids and higher acid content, differing with the variety and the concentration.

Studies with avocados by Labanauskas, Embelton, and Jones at Riverside, Calif. suggest that orchards that have been fertilized heavily with chemical nitrogen over a period of years should be examined carefully for symptoms of micronutrient deficiencies (zinc, copper, iron, manganese, and boron), especially zinc, and that corrective nutrient sprays be used promptly.

By "spin-cooling" (rotating the can about its own axis at about 20 rpm) in contrast to "still-cooling," the time required to cool a 2-pound can of raspberry jam was reduced from 32 minutes to 7 minutes by Canadian research workers.

Beef cattle in Virginia fed on apple pomace from canning plants did as well as those on grass silage.

Jerry Mandigo of Michigan estimates a ton of average orchard prunings has about the same value as a 100-pound sack of 10-3-7 fertilizer. At the rate of 5 to 10 tons of brush per acre, this is something to reckon with.

Under state and federal marketing orders, California prune growers have promoted the sale of dried prunes, controlled the quality, packaging, and volume marketed, and carried out research and promotional campaigns.

Dr. Greaney of Winnipeg foresees still greater changes in agriculture, prompted by both the biological sciences and the physical sciences, in which atomic power and electronics play a leading role—"by 1980 . . . by closed-circuit television . . . look after four electronically controlled tractors working at four different jobs."

The USDA has reported an internal spot detector, called the "rephobiospect" (still in the experimental stage), which will detect internal spots in fruits and vegetables and measure quality faster than can be done by human judgment.

Says the Canadian Fruitgrower "We believe that the public could find another 25% for the food bill instead of buying a new car every two years and a new TV set every four. . . . It is high time they (fruit growers) put an end to dictated low prices."

Coming Next Month

- Pick-Your-Own—A Success Story
- Making Money with Strawberries
- A Pioneer Looks Back to the Early Days in the Northwest
- New Spray Stops Cherry Leaf Spot
- The Peach Replant Problem

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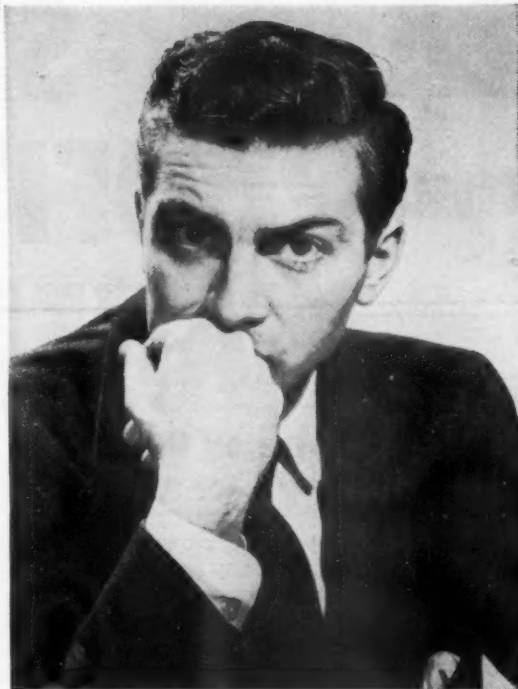
To prove to you the remarkable advantages of the Vitasafe Plan . . . we will send you, without charge, a 30-day free supply of high potency VITASAFE C.F. CAPSULES so you can discover for yourself how much healthier, happier and peppier you may feel after a few days' trial! Just one of these capsules each day supplies your body with over twice the minimum adult daily requirement of Vitamins A, C, and D — five times the minimum adult daily requirement of Vitamin B-1, and the full concentration recommended by the National Research Council for the other four important vitamins! Each capsule contains the amazing Vitamin B-12, a remarkably potent nutrient that helps nourish your body organs. Vitasafe Capsules also contain Glutamic Acid, a natural substance derived from wheat gluten and

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